

SAFETY LAWS
OF
PENNSYLVANIA
FOR
UNDERGROUND BITUMINOUS
COAL MINES

Compiled by the
DEPARTMENT OF
ENVIRONMENTAL PROTECTION

Editor's Note: This book is an unofficial compilation of the Mine Safety Laws of the Commonwealth of Pennsylvania. It has been prepared for the convenience of Commonwealth employees. It is not to be taken as the official text. The official text can be found in Title 52 of Purden's Pennsylvania Statutes Annotated.

Printed 11/04

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PENNSYLVANIA BITUMINOUS COAL MINE ACT

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**ARTICLE I
APPLICATION, DEFINITIONS,
ADMINISTRATION**

Section 101. Short title

This act shall be known and may be cited as the "Pennsylvania Bituminous Coal Mine Act." 1961, July 17, P.L. 659, Art I. §101.

Section 102. Application

This act shall apply to all bituminous coal mines in the Commonwealth of Pennsylvania.

Section 103. Definitions

Subject to additional definitions contained in the subsequent articles, or sections hereof, and unless the context otherwise requires in this act, the following words and terms shall have these meanings:

- (1) "Abandoned workings"--Excavations, either caved or sealed, that are deserted and in which further mining is not intended.
- (2) "Active workings"--All places in a mine that are ventilated and inspected regularly.

(3) "Inactive workings"--Shall include all portions of a mine in which operations have been suspended for an indefinite period, but have not been abandoned.

(4) "Bituminous coal mines"--Shall include all coal mines in the State not now included in anthracite boundaries, and whenever the term "mine" appears in this act it shall be construed to mean bituminous coal mine.

(5) "Certified person"--When used to designate the kind of person to whom the performance of a duty in connection with the operation of a mine shall be assigned, shall mean a person who is qualified under the provisions of this act to perform such duty. This shall include mine foremen, assistant mine foremen, mine examiners, and mine electricians.

(6) "Mine"--Includes the shafts, slopes, drifts, or incline planes connected with excavations penetrating coal stratum or strata, which excavations are ventilated by one general air current, or divisions thereof, and connected by a method of transportation over which coal may be delivered to one or more points outside the mine, when such is operated by one operator. The term "mine" shall not include any strip mine.

(7) "Gassy mine"--A bituminous coal mine where methane has been ignited therein, or has been detected therein with an approved flame safety lamp, or an

approved methane detector; or by laboratory analysis of a sample of air, taken not less than twelve inches from the roof, face and rib, containing methane in an amount of twenty-five one-hundredths per cent or more.

(8) "Non-gassy mine"--A bituminous coal mine which has not been classified as gassy.

(9) "Operator"--Any firm, corporation, or individual operating any coal mine, or any part thereof.

(10) "Superintendent"--Means the person who shall have, on behalf of the operator, immediate supervision of one or more mines.

(11) "Mine foreman"--The person whom the operator or superintendent shall place in charge of the inside workings of the mine and of the persons employed therein.

(12) "Mine examiner"--Shall mean any certified person designated to examine a mine for gas and other dangers. The title "mine examiner" as used in this act, is synonymous with the title "fire boss" as heretofore understood.

(13) "Department"--The Department of Environmental Protection of the Commonwealth, hereinafter referred to as the department.

(14) "Secretary"--The Secretary of Environmental Protection of the Commonwealth or his designee, hereinafter referred to as the secretary.

(15) "Deputy secretary"--A person appointed by the secretary, with approval of the Governor, to assist and aid the secretary in carrying out the provisions of this act, hereinafter referred to as the deputy secretary.

(16) "Investigating commission" (hereinafter referred to as a commission)-- Shall consist of a group of at least three mine inspectors or electrical inspectors, or a combination of both, appointed by the secretary for the purpose of investigating and reporting on any problem in question in compliance with the provisions contained in this act. The district mine inspector shall accompany any commission in his district but need not be a member thereof. The secretary at his discretion may appoint the deputy secretary as a member of any commission.

(17) "Mine inspector"--The person commissioned by the Governor to have supervision of mines as hereinafter prescribed.

(18) "Electrical inspector"--The person commissioned by the Governor to perform electrical inspections as hereinafter prescribed.

(19) "Examining board"--The Bituminous Mine Inspectors' and Electrical Inspectors' Examining Board provided for in section 109 of this article.

(20) "Face"--Defined as being the solid coal at the inby end of a working place.

(21) "Working place"--The face area where the coal seam is being broken or severed.

(22) "Coal-producing shift"--A shift primarily intended for coal production rather than for purposes of construction, maintenance and housekeeping even though some coal production may be incident to such purposes.

(23) "Return air"--After a volume of air has passed through and has ventilated all of the working places in the air split it shall then be designated as return air.

(24) "Shaft"--A vertical opening through the strata that is or may be used for the purpose of ventilation or drainage or for hoisting men or material or both in connection with the mining of coal.

(25) "Slope and drift"--An incline or opening used for the same purpose as a shaft.

(26) "Approved"--Which is used in connection with equipment, supplies, explosives and lamps, means

"approved for use in bituminous coal mines by the secretary," whether such approval has been made prior to or subsequent to the effective date of this act.

(27) "Permissible"--When used herein in connection with explosives means approved for use in bituminous coal mines by the United States Bureau of Mines, whether such approval has been made prior to or subsequent to the effective date of this act.

(28) "MSHA"--The Mine Safety and Health Administration within the United States Department of Labor.

(29) "DPEP"--Diesel-powered equipment package.

(30) "Advisory committee"--The Technical Advisory Committee on Diesel-Powered Equipment established in section 224-A.

Section 104. The secretary and the deputy secretary

(a) It shall be the duty of the secretary to devote the whole of his time to duties of his office, and to see that the mining laws of the Commonwealth are faithfully executed. The secretary shall appoint, with the approval of the Governor, a deputy secretary for the bituminous division to assist with his duties. The secretary and the deputy secretary are hereby invested

with the same power and authority as the inspectors to enter and examine any mine within the Commonwealth, and the works and machinery connected therewith, and to give such aid and instruction to the inspectors from time to time as they may deem best calculated to protect the health and promote the safety of all persons employed in and about the mines.

(b) It shall be the duty of the secretary to take charge of, and preserve in his office, the annual reports of the mine inspectors, and transmit a synopsis of them, together with such other statistical data compiled therefrom, and other work of the department as may be of public interest, properly addressed, to the Governor, to be transmitted to the General Assembly of this Commonwealth, on or before March 15 in each year. It shall also be the duty of the secretary to see that said reports are placed in the hands of the public printer or others equipped to reproduce same, for publication, on or before April 1 in each year; the same to be published under the direction of the secretary. In order that the secretary may be able to prepare, compile and transmit a synopsis of his annual report to the Governor within the time herein specified, the mine inspectors are hereby required to deliver their annual reports to the secretary on or before February 20 in each year. In addition to the annual reports herein required of the mine inspectors, they shall furnish the secretary monthly reports, and

also such special information on any subject regarding mine accidents, or other matters pertaining to mining interests, or the safety of persons employed in and about the mines, as he at any time may require or may deem necessary, in the proper and lawful discharge of his official duties. The secretary shall also establish, as far as may be practicable, a uniform style and size of blanks for the annual, monthly and special reports of the mine inspectors, and prescribe the form and subject matter to be embraced in the text and the tabulated statements of their reports.

The secretary is hereby authorized to make such examinations and investigations as may enable him to report on the various systems of coal mining in the Commonwealth, method of mining ventilation and machinery employed, the circumstances and responsibilities of mine accidents; and such other matters as may pertain to the general welfare of coal miners and others connected with mining, and the interests of mine owners and operators in the Commonwealth.

(c) The board of examiners for the examination of applicants for mine inspectors and electrical inspectors in the bituminous coal mines of the Commonwealth, the board for the examination of applicants for first and second grade certificates, mine examiners and mine electricians, in the bituminous coal mines, and the board applicants for certificates of competency as

miners, shall send to the secretary the manuscripts and all other papers of applicants, together with the tally sheets and the solution of each question as given by the examining board, which shall be filed in the department as public documents for a period of time not less than eight years.

(d) The secretary shall keep in the department a journal or record of all inspections, examinations and work done under his administration, and copies of all official communications; and is hereby authorized to procure such books, instruments and chemicals, or other tests, as may be found necessary to the proper discharging of his duties under this act, at the expense of the Commonwealth. All instruments, plans, books and records pertaining to the office shall be the property of the Commonwealth, and shall be delivered to his successor in office.

(e) The secretary shall, at all times, be accountable to the Governor for the faithful discharge of his duties imposed on him by law, and the administration of his office and the rules and regulations pertaining to said department shall be subject to the approval of the Governor.

(f) No person who is acting as a land agent, or as a manager, viewer, or agent of any mine, shall, at the same time, serve as secretary or deputy secretary under the provisions of this act.

Section 105. Mine inspection districts; mine inspectors

The bituminous coal producing counties of the Commonwealth shall be arranged by the secretary, with the consent of the Governor, into mine inspection districts, and the secretary may, at any time with the consent of the Governor, redistrict the bituminous coal producing districts. Each mine inspection district shall have a mine inspector. The Governor shall commission and appoint mine inspectors from among persons holding valid unexpired certificates of qualification issued by the examining board under this act or under any previous act, and each mine inspector shall hold office during good behavior or until removed from office as herein provided. It shall be the duty of the secretary to assign the mine inspectors to their respective districts and the secretary shall also designate the place of abode of each mine inspector, at a point as convenient as possible to the mines of his district.

Section 106. Electrical inspectors

On or after the effective date of this act, the secretary, with the consent and approval of the Governor, shall appoint such certified electrical inspectors as he may deem necessary to inspect at least twice a year all electrical equipment used in bituminous coal mines,

and to perform such other inspections of electrical equipment in and around the bituminous coal mines of the Commonwealth as may be deemed necessary by the secretary.

Section 107. Eligibility for appointment as a bituminous coal mine inspector

The qualifications for certification of a candidate for the office of mine inspector shall be as follows: The candidate shall be a citizen of the Commonwealth of Pennsylvania, of temperate habits, of good repute as a person of personal integrity, in good physical condition, shall have successfully passed the examination for mine inspector provided in section 109 hereof, shall have had at least ten years' practical experience in bituminous coal mines, five years of which, immediately preceding his examination, shall have been in bituminous coal mines of this Commonwealth, and shall have had practical experience with explosive gas and other dangerous gases found in coal mines: Provided, however, That any candidate who has honorably served in the armed forces of the United States or an ally thereof shall be eligible to take such examination, where the required continuity of practical experience has been interrupted by such military service.

Section 108. Eligibility for appointment as an electrical inspector

The qualifications for certification of a candidate for the office of electrical inspector shall be as follows: The candidate shall be a citizen of the Commonwealth of Pennsylvania, of temperate habits, of good repute as a person of personal integrity, in good physical condition, shall have had five years' experience in gassy mines of this Commonwealth as a mine electrician or an electrical engineer, and shall have successfully passed the examination for electrical inspectors provided in section 109 of this article: Provided, however, That any candidate who has honorably served in the armed forces of the United States or an ally thereof shall be eligible to take such examination, where the required continuity of practical experience has been interrupted by such military service.

Section 109. Bituminous mine inspectors' and electrical inspectors' examining board

(a) The Bituminous Mine Inspectors' and Electrical Inspectors' Examining Board for the bituminous coal mines of the Commonwealth of Pennsylvania shall consist of the secretary; two mining engineers, who shall have had at least five years' experience in the bituminous coal mines of Pennsylvania; two members who shall have passed successfully an examination

qualifying them to act as mine inspector or mine foreman in gassy mines; and one certified miner member; all of whom shall have had at least ten years' practical experience in the bituminous coal mines of Pennsylvania. All members of the examining board shall be at least thirty years of age, and all members, other than the secretary, shall be appointed by the Governor.

(b) The Secretary of the Department of Environmental Protection shall be the chairman of the examining board. The chairman of the examining board shall select a secretary who need not be a member of the examining board.

(c) The examining board, after being duly organized, shall take and subscribe to, before any 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 appointment as inspector of mines or as electrical inspector to the best of our ability, and that in recommending or rejecting said applicants we will be governed by the evidence of their qualifications to fill the position, and not by any consideration of political or personal favor, and that we will certify all whom we may find qualified according to the true intent and meaning of this act, and none other."

(d) The secretary of the examining board and each member of the examining board (other than the Secretary of the Department of Environmental Protection) shall receive thirty dollars (\$30) per diem while actively engaged in the performance of the work of the examining board. The Secretary of the Department of Environmental Protection shall have the right to determine, from time to time, the maximum number of days for which the members of the examining board and its secretary shall receive compensation. The members of the examining board and its secretary shall receive traveling expenses at the prevailing rate from their home to the place of the meeting of the examining board and returning therefrom, and such other necessary traveling expenses as may be incurred in connection with the work of the examining board.

(e) The examining board shall prepare questions and answers and formulate rules for the examination of candidates for appointment to the office of mine inspector and electrical inspector. The examining board shall conduct, at a place designated by it, an examination of candidates for appointment to the offices of mine inspector and electrical inspector during the year 1964, and shall conduct an examination of such candidates during every fourth year thereafter. The examining board may also be convened by the Governor, at any other time, when there remains upon the list of successful candidates

less than three names, as a result of appointments made therefrom, or as a result of the expiration of certificates of qualification, to meet and proceed to conduct an examination for the purpose of supplying a new list of eligible candidates.

(f) Candidates for the office of mine inspector who have submitted such proof as the examining board shall require that they are otherwise qualified as set forth in section 107 of this article shall be examined on and must give evidence of having such theoretical as well as practical knowledge and general intelligence respecting mines and mining and the working and ventilation of mines as will satisfy the examining board of their capability and fitness to perform the duties imposed upon mine inspectors under this act. The principal portion of such examination shall be in writing but each applicant shall also undergo an oral examination pertaining to explosive gas, safety lamps, methods of ventilation, and mine management. The questions and answers thereto in the oral examination shall be reported verbatim by an expert stenographer, or shall be mechanically recorded, and typewritten fully, or reproduced by some other method, to assist the examining board in the work of rating the qualifications of the candidates. Any candidate who shall make a general average of at least ninety per cent shall be deemed successful on such examination.

(g) Candidates for the office of electrical inspector who have submitted such proof as the examining board shall require that they are otherwise qualified as set forth in section 108 of this article, shall be examined on and must give evidence of having such theoretical as well as practical knowledge and general intelligence respecting the use and installation of both alternating current and direct current electricity in the mines, machinery powered thereby, and the laws of the Commonwealth relating to the application of electricity in mines as will satisfy the examining board of their capacity and fitness to perform the duties of electrical inspectors under this act and must pass the examination with an average of eighty-five per cent.

(h) The manuscripts and other papers of applicants for the office of mine inspector and electrical inspector in the principal examination, together with tally sheets and the correct solution of each question as prepared by the examining board, and the stenographer's report or other record of the oral examination for inspectors, shall be filed with the department for a period of time of not less than eight years.

(i) The names and percentages of all successful candidates who are properly qualified under the provisions of this article to fill the office of inspector shall be certified by the examining board to the Governor and to the department. A certificate of qualification shall be issued to each successful

candidate by the secretary. A certificate so granted shall be valid for a period of four years from the date of the examination unless the holder has received an appointment in the interim period in which case the certificate shall become permanent unless the appointee has voluntarily relinquished the position within a period of one year after appointment. A certificate of qualification of a person honorably discharged from the armed forces of the United States shall not expire until the first examination occurring more than six months following his release from military service.

(j) The examining board shall, after the examination, furnish to any candidate, on request, a copy of all oral and written questions given at the examination marked as answered by the candidate "solved right," "imperfect" or "wrong," as the case may be.

(k) Any inspector appointed under the provisions of previous laws or under the provisions of this act shall be eligible for reappointment without further examination, even if beyond fifty-five years of age if he has served as an inspector for a period of four or more years.

Section 110. Salary of mine inspectors

The salary of mine inspectors shall be as established by the executive board.

The mine inspectors shall be allowed all necessary expenses incurred by them in enforcing the several provisions of this act in the respective courts of this Commonwealth, if they have obtained the consent of the department before such expense is incurred, the same to be paid by the State Treasurer, on warrant of the Auditor General, issued upon presentation of itemized vouchers approved by the court before which the proceedings were instituted, and also by the secretary.

Section 111. Salary of electrical inspectors

The salary of mine inspectors shall be as established by the executive board.

Section 112. Mine inspector; expenses

Each mine inspector may also incur traveling expenses, and such other expenses as may be necessary for the proper discharge of his duties under the provisions of this act. Each mine inspector shall have an office in his district, which may be at his place of residence: Provided, That a suitable room, approved by the secretary, be set apart for that purpose. The secretary shall have authority to procure for the mine inspectors, on their request, furniture, instruments, chemicals, typewriters, stationery and all other necessary supplies, which shall be paid for by the

State Treasurer, on warrant of the Auditor General issued upon presentation of vouchers approved by the secretary. All furniture, instruments, plans, books, memoranda, notes and other materials pertaining to the office of mine inspector, shall be the property of the Commonwealth, and shall be delivered by the mine inspector to his successor in office.

Section 113. Electrical inspector; expenses

Each electrical inspector may also incur traveling expenses, and such other expenses as may be necessary for the proper discharge of his duties under the provisions of this act. The secretary, through the Department of Property and Supplies, shall purchase for the electrical inspectors such instruments and equipment as he deems necessary to assist them in carrying out the duties imposed upon them by this act.

Section 114. Mine inspector; bond; oath

Each mine inspector shall, before entering upon the discharge of his duties, give a surety bond in the sum of five thousand dollars (\$5000), conditioned for the faithful discharge of his duties; and shall take an oath or make affirmation that he will discharge his duties with impartiality and fidelity, to the best of his knowledge and ability. Such bond and oath shall be filed in the office of the Secretary of the Commonwealth. No person who is acting as manager

or agent of any coal mine, or as mining engineer, or who is directly or indirectly interested in operating any coal mine shall at the same time act as mine inspector.

Section 115. Temporary mine inspectors and electrical inspectors

In case a mine inspector or electrical inspector becomes incapacitated to perform the duties of his office, or is granted a leave of absence by the secretary, it shall be the duty of the Governor, at the request of the secretary, to appoint temporarily to the office a person holding a valid certificate of qualification. The temporary inspector shall act until the regular inspector is able to resume the duties of his office.

Section 116. Removal of mine inspectors and electrical inspectors

The mine inspector and electrical inspector shall be responsible to the secretary for the proper performance of their duties. The secretary shall have the power to suspend any mine inspector or electrical inspector for any neglect of duty, but such suspended inspector shall have the right of appeal to the Governor, who shall be empowered to approve of such suspension or restore such suspended inspector to duty, after investigating the causes which led to such suspension. Should the secretary receive information by petition,

signed by ten or more miners or three or more operators, setting forth that any of the inspectors are neglectful of the duties of their office, or are physically unable to perform the duties of their office, or are guilty of malfeasance in office, he shall at once investigate the matter; and if he shall be satisfied that the charge or charges are well founded, he shall then petition the court of common pleas or the judge in chambers, in any county within or partly within the inspection district of the inspector; which court upon receipt of said petition and a report of the character of the charges and testimony produced, shall at once issue a citation, in the name of the Commonwealth, to the said inspector to appear, on not less than fifteen days' notice, on a fixed day, before said court at which time the court shall proceed to inquire into the allegations of the petitioners, and may require the attendance of such witnesses, on the subpoena issued and served by the proper officer or officers, as the judge of the court and the secretary may deem necessary in the case; the inspector under investigation shall also have similar power and authority to compel the attendance of witnesses in his behalf. If the court shall find by said investigation that the said inspector is guilty of neglecting his official duties, or is physically incompetent to perform the duties of his office, or is guilty of malfeasance in office, the said court shall certify the same to the Governor, who shall declare the office vacant, and shall proceed to supply the vacancy as provided by the mining laws of the

Commonwealth. The cost of such investigation shall, if the charges are sustained, be imposed upon the deposed inspector, but if the charges are not sustained, the costs shall be paid out of the State Treasury, upon voucher or vouchers duly certified by said secretary. If said charges are not sustained, the inspector shall be compensated for time lost during suspension.

To enable said secretary to conduct more effectually his examinations and investigations of the charge and complaints which may be made by petitioners against any of the inspectors as herein provided, he shall have power to administer oaths and take affidavits and depositions, in form and manner provided by law.

Section 117. Duties of mine inspectors

Each mine inspector shall devote the whole of his time to the duties of his office. It shall be his duty to thoroughly examine each operating mine in his district as often as necessary for safety. Non-gassy mines shall be inspected at least once every four months. Mines liberating explosive gas and where other dangers may be suspected to exist shall be inspected at least once every three months to see that all the provisions of this act are observed and strictly carried out, especially those that demand that the air current be carried to the working faces. He shall keep in his office a record of all examinations of mines, showing the condition in which he finds them, especially with reference to

ventilation, roof control and drainage, the number of persons employed inside each mine, the extent to which the law is obeyed, and the progress made in the improvement of mines. He shall keep a record of all lost time accidents, showing the nature and causes thereof, and the number of deaths resulting therefrom. He shall also perform such other duties as the secretary may require.

Section 118. Duties of electrical inspectors

In order that the electrical inspector may properly perform the duties required of him, he shall devote his whole time and attention to the duties of his office, and he shall have the right to enter any coal mine for the purpose of inspecting electrical equipment, and if he finds during his inspection any defects in the electrical equipment which may be detrimental to the lives or health of the workmen, he shall have the authority to order the operator, in writing, to remedy such defects within a prescribed time, and to prohibit the continued operation of such electrical equipment after such time, unless such defects have been corrected.

Section 119. Inspections; reports of inspections

(a) At the conclusion of the examination of a mine, the mine inspector shall discuss with representatives of management, and the employees, his findings and

recommendations. Where it is not feasible to hold a joint conference, separate conferences shall be held. After the conferences have been held, the mine inspector shall, as soon as possible, prepare and forward the original report to the operator, or his representative. The manner and form of the report shall be as prescribed by the secretary. Such operator or his representative shall post said report in the office of the mine or in some other conspicuous place where it shall remain for one year, open to examination by any person employed in or about the said mine. The report shall show the date of the inspection, the number of cubic feet of air in circulation, where the measurement of the air was made, and the quantity of air as measured at the last cut-through in each split, together with the number of persons employed in each split, and also at any other place requested by the secretary. The report shall contain such other information as the secretary may deem necessary.

(b) It shall be the duty of the electrical inspector after completing his examination of a mine to prepare a report describing his findings in said mine in a manner and form designated by the secretary. The original report shall be forwarded to the operator or his representative whose duty it shall be to post it in some conspicuous place where it shall remain for one year, open to examination by any person employed in or about the mine. The report shall show the date of

inspection, a list of equipment, and any other information that the secretary may deem necessary.

Section 120. Mine inspector; cease work

If the mine inspector discovers any room, entry, airway, or other working places being driven in advance of the air current, contrary to the requirements of this act, he shall order the workmen in such places to cease work at once until the law is complied with.

Section 121. Mine inspectors' findings

To enable the mine inspector to perform the duties imposed upon him by this act, he shall have the right at all times to enter any mine in his district or any mine in any other district when directed to do so by the secretary, to make examinations or obtain information; and upon the discovery of any violation of this act, or upon being informed of any violation of the act, he shall institute proceedings against the person or persons at fault, under the provisions of this act. In case any mine or portion of a mine is, in the judgment of the mine inspector, in so dangerous a condition, from any cause, as to jeopardize life and health, he shall at once notify the secretary, who shall immediately appoint a commission to accompany promptly the said mine inspector to the mine wherein said dangerous condition is alleged to exist. The

commission shall make a full investigation, and if they shall agree that there is immediate danger they shall direct the superintendent of the mine, in writing, or remove forthwith said dangerous condition. If the superintendent fails to do so, the mine inspector in the district shall immediately apply, in the name of the Commonwealth, to the court of common pleas of the county in which said mine is located, or to a judge of said court in chambers, for an injunction to enjoin the operation of all work in and about said mine. Whereupon said court, or judge, shall at once proceed to hear and determine the case; and if the cause appears to be sufficient, after hearing the parties and their evidence, as in like cases, shall issue its writ to restrain the working of said mine until all cause of danger is removed; and the costs of said proceedings shall be borne by the owner, lessee, or agent of the mine: Provided, That if said court shall find the cause not sufficient, then the case shall be dismissed, and the costs shall be borne by the county wherein said mine is located: Provided also, That should any mine inspector find during his inspection of a mine, or portion of a mine, such dangerous conditions existing therein that, in his opinion, any delay in removing the workmen from such dangerous places might cause loss of life or serious personal injury to the employees, the said mine inspector shall have the right to temporarily withdraw all persons from such dangerous places until the foregoing provisions of this section can be carried into effect.

Section 122. Mine inspectors' reports to the secretary

Each mine inspector shall make the following reports to the secretary, on blank forms provided for that purpose. Not later than the fifteenth of each month he shall make a report of all fatal and lost-time accidents that have occurred in his district during the preceding month, stating the date, nature, and cause of each accident, together with the name, age and occupation of each person killed or injured, and whether married or single, and the number of widows and orphans left; which report shall be recorded and filed in the department, and included (or a synopsis of the same) in the annual report of said department. Not later than February 20 of each year he shall make an annual report, which shall briefly recapitulate the duties performed by him during the preceding year, and briefly describe the condition of the mines in his district relative to ventilation, roof control, drainage, and general sanitary arrangements, as relating to the health, safety, and welfare of the employees, and which shall also contain such suggestions or information of importance as he may deem necessary, or as required by the secretary. The mine inspector shall also make such other reports as the secretary shall require.

Section 123. Discretionary power of mine inspectors

The mine inspector shall exercise sound discretion in the performance of his duties under the provisions of this act, and if the operator, superintendent, mine foreman, or other person employed in or about any mine, shall be dissatisfied with any decision the mine inspector has given in the discharge of his duties, which decision shall be in writing, it shall be the duty of the dissatisfied person to appeal from said decision to the secretary, who shall at once appoint a commission to accompany promptly the mine inspector in the district to make further examination into the matter in dispute. If the said commission shall agree with the decision of the mine inspector in the district, their decision shall be final and conclusive, unless an appeal is taken in accordance with the provisions of the act of June 4, 1945 (P.L. 1388, No. 442), known as the "Administrative Agency Law."

Section 124. Appointment of a commission by the Secretary

The secretary may, at his discretion, appoint a commission for the purpose of investigating any question within the purview of this act to enable him to make a decision in accordance therewith: Provided, however, That it shall be mandatory that the secretary appoint a commission for the purpose of an

investigation wherein such action is required in any of the provisions of this act.

Section 125. Reports of operating mines

The operator or superintendent of each operating mine in the Commonwealth shall file a report with the secretary and with the mine inspector in the district setting forth the name of the mine, the name of the operator, the location of the mine and the postal address of the mine office on the following occasions:

- (1) Within thirty days after the effective date of this act.
- (2) Within thirty days after the commencement of work for the purpose of opening a new mine.
- (3) Prior to any work being done in resumption of the operation of a mine after an abandonment, or within thirty days after a discontinuance of its operation for a period exceeding two months.
- (4) Within thirty days of any change in the name of the mine or in the identity of the operator of a mine.

Section 126. Mine rescue station; equipment; instructors

(a) On and after the effective date of this act, the secretary, with the consent of the Governor, shall appoint two first-aid instructors and two mine rescue instructors to carry on the work of instructing mine employees how to care for persons injured in and about the bituminous coal mines of this Commonwealth, and to train such other employees of the various coal companies who may voluntarily seek training in the use of self-contained breathing apparatus, gas masks, first aid to the injured, and such other things or practices essential to the safe and efficient conduct of the work of first aid and mine rescue.

(b) The secretary, with the consent of the Governor, shall have the authority to purchase, through the Department of Property and Supplies, two trucks equipped with the necessary breathing apparatus, gas masks, first-aid supplies, analytical apparatus and such other chemical and scientific instruments commonly used and necessary in the work of first aid and mine rescue.

The secretary, with the consent of the Governor, shall also have the authority to purchase, through the Department of Property and Supplies, such emergency mine rescue trucks and equipment, as in his opinion

shall be deemed necessary, for use in mine catastrophes.

(c) The persons appointed to the position of first-aid instructor and mine rescue instructor shall not be under twenty-five or over fifty-five years of age on the date of their appointment. They shall be citizens of this Commonwealth and shall devote their whole time and attention to the duties of their office. They shall have a first grade mine foreman's certificate, issued by the department, and shall be in possession of a first-aid certificate issued by the department, the Red Cross, the Federal Bureau of Mines, or any other recognized authority on the subject of first aid. They shall also undergo an examination arranged and conducted by the secretary. The examination, so conducted by the secretary, shall pertain to the applicant's knowledge and experience in the use of such instruments and equipment as are commonly used in mine rescue work.

(d) The salaries of first-aid instructors and mine rescue instructors shall be as established by the executive board.

(e) The persons so trained in the work of first aid and mine rescue, shall, upon completion of a course of training and instruction as may be prescribed by the secretary, be granted a certificate of competency. Such certificate shall be issued by the secretary upon written

notice from the "Chief of Crew" that the applicant has completed, in a satisfactory manner, the course of training and instruction prescribed by the said secretary.

Section 127. Mine rescue crews

The secretary is hereby authorized to have trained and employed at the rescue stations operated by the department, such rescue crews as he may deem necessary. Each member of a rescue crew shall devote adequate time for training purposes as determined by the secretary, and shall be available at all times to assist in rescue work at explosions, mine fires and recovery work. Members of the mine rescue crews shall be compensated at rates commensurate for the area as determined by the secretary and payable on requisition approved by the secretary, and such other sums to be paid by the operating company as may be agreed upon when engaged in rescue work at explosions, mine fires or recovery work. The secretary may remove any member of a rescue crew at any time.

Section 128. Supervision of mine rescue work

The secretary is hereby authorized to assign mine rescue crews and such mine rescue and recovery work to mine inspectors or other qualified employees of the department as he may deem necessary.

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 (NO₂). 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.

**ARTICLE III
RULES FOR THE INSTALLATION AND
MAINTENANCE
OF ELECTRICAL EQUIPMENT**

Section 301. Duties of mine foreman and superintendent

It shall be the duty of the mine foreman and superintendent to see that the requirements of this article for the installation and maintenance of electrical equipment are observed in all coal mines.

Section 302. Definitions

As used in this article, the following words and terms shall have these meanings:

(1) “Branch circuit”—A branch circuit shall be any tap taken off a main circuit.

(2) “Difference of potential”—The difference of electrical pressure or electromotive force existing between any two points of an electrical system, or between any point of such a system and the earth, as determined by a voltmeter or other suitable instrument. The terms “potential” and “voltage” are synonymous and mean electrical pressure.

(3) “Explosion or flame proof”—Explosion or flame proof casings or enclosures are those which, when completely filled with a mixture of methane and air and the same exploded are capable of either entirely confining the products of such explosion within the casing or of so discharging them from the casing that they cannot ignite a mixture of methane and air, combined in proportions most sensitive to ignition and entirely surrounding the points of discharge, and in most intimate proximity therewith.

(4) “Potential of a circuit”—The potential or voltage of a circuit machine, or any piece of electrical apparatus is the potential difference normally existing between the conductors of such circuit or the terminals of such machine or apparatus.

(5) “Low voltage supply”—Where the conditions of the supply of electricity are such that the difference of potential between any two points in the circuit cannot exceed three hundred volts.

(6) “Medium voltage supply”—Where the conditions of the supply of electricity are such that the difference of potential between any two points in the circuit may at any time exceed three hundred volts, but cannot exceed six hundred and fifty volts.

(7) “High voltage supply”—Where the conditions of the supply of electricity are such that the difference of

potential between any two points in the circuit may at any time exceed six hundred and fifty volts.

(8) “Approved”—Approved means in strict compliance with this act or in the absence of specific mention, approved by the secretary.

(9) “Armored cable”—An armored cable is a cable provided with a wrapping of metal, usually steel wires or tapes, primarily for the purpose of mechanical protection.

(10) “Borehole cable”—A borehole cable is a cable designed for vertical suspension in a borehole or shaft and is used for power circuits in the mines.

(11) “Cable shield”—A cable shield is a metallic shield consisting of nonmagnetic material applied over the insulation of the individual conductors.

(12) “Cable sheath (nonmetallic)”—A cable sheath is a covering consisting of composition tapes, compound jackets of natural or synthetic rubber, thermoplastic or fiber braids applied over the conductor assembly and insulation of multiple conductor cables.

(13) “Circuit breaker”—A circuit breaker is a device which may be controlled by relaying or protective equipment for interrupting a circuit between separable contacts under normal or abnormal conditions.

(14) “Delta-connected”—A delta-connected power system is one in which the windings of transformers or A.C. generators are connected to form a triangular phase relationship, and with the phase conductors connected to each point of the triangle.

(15) “Effectively grounded”—Effectively grounded is an expression which means grounded through a grounding connection of sufficiently low impedance (inherent or intentionally added, or both) so that fault grounds which may occur cannot build up voltages in excess of limits established for apparatus, circuits, or systems so grounded.

(16) “Electric system”—Electric system means all electric equipment and circuits that pertain to the operation of the mine and are under control of the mine management.

(17) “Electrical face equipment”—Face equipment is mobile or portable mining machinery having electric motors or accessory equipment normally installed or operated in by the last open crosscut in any entry or room.

(18) “Flame-resistant cable”—A flame-resistant cable is a cable that has met the department requirements for flame resistance and has been assigned an approved number (P-number). All flame-resistant cables used

underground shall have the “P” number embossed or indented on the jacket at intervals not to exceed twelve feet.

(19) “Ground (earth)”—A ground is a conducting connection, whether intentional or accidental, between an electric circuit or equipment and earth, or to some conducting body which serves in place of the earth.

(20) “Ground or grounding conductor (mining)”—A grounding conductor (also referred to as a safety ground conductor, safety ground and frame ground) is a metallic conductor used to connect the metal frame or enclosure of an equipment, device or wiring system, with an effective grounding medium.

(21) “Primary ground”—A primary ground is a low impedance ground bed or system consisting of several interconnected ground rods or buried conducting mesh, or both, located near an outdoor substation and used as a lightning arrestor or station ground, or separately, as a basic ground for one conductor of a power transmission or distribution system. A single ground rod of any length is not considered a primary ground.

(22) “Lightning arrestor”—A lightning arrestor is a protective device for limiting surge voltages on equipment by discharging or by-passing surge current; it prevents continued flow of follow current to ground

and is capable of repeating these functions as specified.

(23) “Machine operator”—A qualified person who is placed in charge of a portable or mobile face machine of any sort.

(24) “Mine power center”—A mine power center is a combined transformer and distribution unit, and may include a rectifier, complete within a metal enclosure, from which one or more low-voltage or medium-voltage power circuits are taken.

(25) “Neutral point”—A neutral point in a wye-connected A.C. power system means the connection point of transformer or generator windings from which the voltage to ground is nominally zero, and is the point generally used for system grounding.

(26) “Neutral (derived)”—A derived neutral is a neutral point of connection established through the use of a “zig-zag” or grounding transformer with a normally ungrounded delta power system.

(27) “Nonmetallic armor”—Nonmetallic armor means a tough outer covering or cable sheath of rubber, rubber compound or thermoplastic, designed to protect the cable conductors and insulation from abrasion or other damage from external sources.

(28) “Portable (trailing) cable”—A portable cable is a flexible cable or cord used for connecting mobile, portable, or stationary equipment in mines to a trolley system or other external source of electric energy where permanent mine wiring is prohibited or is impracticable.

(29) “Protection (electrical)”—Protection is provided by fuses or other suitable automatic circuit-interrupting devices for preventing damage to circuits, equipment, and personnel by abnormal conditions, such as over-current, high or low voltage and single-phasing.

(30) “Rectifiers”—Rectifiers as referred to in this law means alternating-current to direct-current power conversion devices of the mercury-arc or semiconductor (silicon, selenium or other) type.

(31) “Wye-connected (Y-connected)”—A wye-connected power system is a system in which one end of each phase winding of transformers or A.C. generators are connected together to form a neutral point, and the other ends of the windings are connected to the phase conductors.

(32) “Zig-zag transformer (grounding transformer)”—A zig-zag transformer is a three-phase transformer used to provide a neutral point on “delta” systems and

capable of carrying continuously the maximum ground fault current of the system.

Section 303. Plan of electrical system

A plan shall be kept at the mine showing the location of all stationary electrical apparatus in connection with the mine electrical system, including permanent cables, conductors, switches, and trolley lines. The plan shall be of sufficient size to show clearly the position of such apparatus, and the scale shall not be less than five hundred feet per inch. There shall be stated on the plan the capacity in horsepower of each motor, and in kilowatts of each generator, rectifier or transformer, and the nature of its duty. Such plans shall be corrected as often as may be necessary to keep them up to date, or at intervals not exceeding six months.

Section 304. Protection against shock

Mats of rubber, insulated platform or other suitable insulating materials shall be provided at all stationary transformers, rectifiers, motors, generators and their controls, except portable and mobile equipment. Gloves or mats of rubber or other suitable insulating material shall be provided by the operator and used by qualified persons so engaged when repairs are made to the energized parts of any electrical apparatus, or

when the energized parts of electrical apparatus have to be handled for the purpose of adjustment.

Section 305. Restoration from shock

Instruction shall be posted in every generating, transforming and motor room and at the entrance to the mine, containing directions as to the restoration of persons suffering from electric shock, and all employees working in connection with electrical apparatus shall be familiar with and competent to carry out these instructions.

Section 306. Report of defective equipment

In the event of a breakdown or damage or injury to any portion of the electrical equipment in a mine, or overheating, or the appearance of sparks or arcs outside of enclosed casings, or in the event of any portion of the equipment, not a part of the electrical circuit, becoming energized, the equipment shall be disconnected from its source of power, the occurrence shall be promptly reported to a mine official, and the equipment shall not be used again until necessary repairs are made.

Section 307. Damage or alteration to mine electrical system

No person shall willfully damage or, without authority, alter or make connections to any portion of a mine electrical system.

Section 308. Capacity

All electrical apparatus and conductors shall be sufficient in size and power for the work they may be called upon to do, and as hereinafter prescribed, efficiently covered or safeguarded, and so installed, operated, and maintained as to reduce danger from accidental shock or fire to the minimum, and shall be of such construction, and so operated, that the rise in temperature caused by ordinary operation will not injure the insulating materials. Where these conditions are not met, affected equipment shall be removed from service until corrective action is taken.

Section 309. Joints in conductors

All joints in conductors shall be mechanically and electrically efficient. Suitable connectors or screw clamps shall be used. All joints in insulated wire shall, after the joint is complete, be reinsulated to at least the same extent as the remainder of the wire.

Section 310. Cables entering fittings

The exposed ends of cables, where they enter fittings of any description, shall be protected and finished off so that moisture cannot enter the cable, or the insulating material, if of an oily or viscous nature, leak. Where unarmored cables or wires pass through metal frames, or into boxes or motor casings, the holes shall be substantially bushed with insulating bushings, and, where necessary or required, with gas-tight bushings which cannot readily become displaced.

Section 311. Switches, fuses and circuit breakers

(a) Fuses and automatic circuit breakers shall be so constructed as to effectively interrupt the current on short circuit, or when the current through them exceeds a predetermined value. Open type fuses shall be provided with terminals. Circuit breakers shall be of adequate interrupting capacity.

(b) Circuit breakers used to protect feeder circuits shall be set to trip when the current exceeds by more than fifty percent the rated capacity of the feeder. In case the feeder is subjected to overloads sufficient to trip the circuit breaker, but of short duration, the circuit breaker may be equipped with a device which will prevent its acting unless the overload persists for a longer period than ten seconds. Trip current shall be indicated at the circuit breaker.

(c) Fuses shall be stamped or marked, or shall have a label attached indicating the maximum current which they are intended to carry. Fuses shall only be adjusted or replaced by a competent person authorized by the mine foreman.

(d) Fuses used to protect feeders shall be a less current rating than the feeder.

(e) All switches, circuit breakers and fuses shall have incombustible bases.

Section 312. Lightning protection

If the surface transmission lines of low or medium voltage from the generating station are overhead, there shall be lightning arrestors installed in connection therewith at the generating station. If the distance from the generating station to the point where the line enters the mine is more than five hundred feet, an additional arrestor shall be installed at this point.

Section 313. Underground power supply

(a) Ground Detectors. All underground systems of distribution that are completely insulated from earth shall be equipped with properly installed ground detectors of suitable design, maintained in working condition. The condition of such system as indicated

by the ground detector shall be noted each day by the person in charge of the underground electrical system, or by another competent person, who shall immediately report to the mine foreman the occurrence of a ground.

(b) Protection of Circuits Leading Underground.

(1) In every completely insulated feeder circuit in excess of twenty-five kilowatts capacity, leading underground and operating at a potential not exceeding the limits of medium voltage, there shall be provided above ground a circuit breaker arranged to open simultaneously each ungrounded conductor. In addition, a positive disconnect means shall be installed outby the circuit breaker. Overload protection shall be provided to open the circuit breaker in case of overload on any conductor. Fuses may be substituted for circuit breakers in circuits transmitting twenty-five kilowatts or less. Each power circuit in excess of fifty kilowatts leading underground shall be provided with a suitable ammeter.

(2) Every alternating current feeder circuit leading underground and operating at a potential exceeding the limits of medium voltage shall be provided above ground with a suitable circuit breaker, such breaker to be equipped with automatic overload trip, arranged to open simultaneously each ungrounded

power-carrying conductor. Each such circuit shall also be provided with a suitable ammeter.

(c) Cables in Shafts, Slopes, and Boreholes.

(1) All cables passing underground through inclines, boreholes and shafts shall be installed in a manner that will prevent undue strain in sheath, insulation or conductors and damage by chafing of cables against each other or against the borehole casing or shaft. All underground power conductors in shafts, boreholes and inclines shall be covered with suitable insulating materials and installed to provide a minimum tensile factor of safety of five. Conductors shall be securely fastened and properly supported out of contact with combustible materials. When the weight, length and construction of a cable are such that suspension from its upper end only would subject the cable to possible damage, it shall be supported at intervals necessary to prevent undue strains in the sheath, insulation, and conductors, and to provide a minimum tensile factor of safety of five. Adequate protection shall be provided so that no damage can result from water, electrolysis, moving cages, skips, ice, coal or other falling or moving materials.

(2) Installation of direct-current and alternating-current cables carrying in excess of twenty-five

kilowatts in the same borehole shall require approval of the secretary.

(d) High Voltage Underground Transmission Systems. (1) High voltage conductors or cables leading underground and extending underground shall be of the flame resistant type with either a rubber, plastic, or armor sheath meeting the requirements of the department for flame resistance. When such cable is fed by high voltage systems other than that described in Article III., sub-article F, Alternating Current Installations, of this act, it shall be either metallic armored, installed in rigid steel conduit, or buried one foot below combustible material. When circuit and protective requirements are met, the cable construction and method of installation may be that described in Article III., sub-article F. Cables, shall be adequate for the intended current and voltage. Splices made in cable shall provide continuity of all components and shall be made in accordance with cable manufacturers' recommendations. The making of such splices shall be supervised by a competent person designated by the mine electrician.

(e) Braid Covered Cable.

(1) No power wires or cables having what is commonly termed as weatherproof insulation or insulation consisting of braided covering, which is susceptible to moisture absorption from the outer

surface to the conductor shall be installed in any mine.

(2) All insulated power cables purchased for use in any mine after the effective date of this act shall be protected by a flame-resistant jacket and assigned a “P” number unless either armored or installed in rigid steel conduit, a metal enclosure, or a fire-proof room.

(f) Ventilation.

(1) In any gassy mine, bare power conductors shall not be installed in any air current that has passed through or by the first working place in the air split.

(2) In all mines, high voltage transmission cable, high voltage motors and high voltage transformers shall not be installed in any air current that has passed through or by the first working place in the air split.

(g) Cables in Haulage Roads.

(1) Where the cables or feed wires other than trolley wires, in main haulage roads, cannot be kept at least twelve inches from any part of the mine car or locomotive, they shall be specially protected by proper guards.

(2) Cables and wires, except trailing or portable cables or bare return cables shall be installed on roof, ribs, walls or timbers by means of efficient insulators or suitable supports. In no instance shall the method of support damage the cable jacket or armor.

(3) When main or other roads are being repaired, or blasting is being carried on, suitable temporary protection from damage shall be given the cables.

(4) All other wires, except telephone, shot-firing and signal wires shall be on the same side of the road as the trolley wire.

(5) Haulage block signal circuits and other control circuits powered from the trolley shall be located on the same side of the road as the trolley.

(h) Branch Circuit Protection. When the potential of a branch circuit exceeds the limit of medium voltage, it shall be protected by a circuit breaker, except as otherwise permitted under section 331, subsection (h). Such circuit breaker shall be equipped with an automatic overload trip arranged to open simultaneously each ungrounded power carrying conductor. Provision for positive disconnection of the branch circuit shall be included.

(i) Underground Transformer and Substation Rooms.

(1) Construction. Any motor-generator, rectifier (except those described in subsection (j) of this section), rotary converter, or oil-filled transformer installed in a mine shall be enclosed in a fireproof chamber of masonry or in an effectively grounded approved steel structure. Such buildings shall be provided with automatically closing fire-doors, but the automatic features of fire-doors may be omitted if a substation attendant be employed. The openings of all such doors shall be so safeguarded by grillwork that the room may be entered only by authorized persons. No electrical equipment containing inflammable material shall be placed within eight feet of a door, or opening, in any such underground building. All such underground substations containing rotary machinery shall have an attendant constantly on duty while rotating machinery is in operation, unless adequate control and protection of the equipment is assured by the use of suitable automatic devices. No transformer, circuit breaker, controller or other device containing more than twenty gallons of inflammable liquid shall be placed in any underground substation. The substation shall be adequately ventilated by a separate split of air. No substation shall be built in any mine until the location, material, construction

and method of ventilation thereof have received the approval of the secretary.

(2) Switchboards. Main and distribution switch and fuse boards shall be made of incombustible, moisture resistant, insulating material, and be fixed in as dry a situation as practicable, or shall be of suitable metal construction, exposed portions of which shall be effectively grounded. All switches, circuit breakers, rheostats, fuses and instruments used in connection with underground motor-generators, rotary-converters, high voltage motors, transformers, and low and medium voltage motors of more than fifty horsepower or fifty KVA capacity, shall be installed upon a suitable switchboard or in a metal-clad switchgear structure. Similar equipment for low and medium voltage motors of fifty horsepower and less, may be separately installed if mounted upon insulating bases of suitable material or effectively metal-clad.

(3) Clearances.

(i) In underground stations where switchboards are installed, there shall be a passageway in front of the switchboard not less than three feet in width and, if there are any high voltage connections at the back of the switchboard, any passageway behind the switchboard shall not be less than three feet clear. The floor at the back of

the switchboard shall be properly floored and insulated with nonconducting material, accessible from each end, and in the case of high voltage switchboards, shall be kept locked, but the lock shall allow the door being opened from the inside without the use of a key.

(ii) Where the supply is at a voltage exceeding the limits of medium voltage, there shall be no live metal work on the front of the main switchboard within seven feet of the floor or platform, and the space provided under subsection (i)(3)(i) of this section shall not be less than four feet in the clear. Insulating floors or mats shall be provided for medium voltage boards where live metal work is on the front.

(4) Transformers. The primary of each underground power transformer shall be protected by a suitable circuit breaker equipped with automatic overload trip arranged to open simultaneously each ungrounded power conductor. The primary of a transformer of less than twenty-five KVA capacity operated at a potential lower than high voltage may be protected by fuses. When a transformer is the only load on a branch circuit, the branch circuit protection can be considered the transformer protection.

(5) Outgoing Feeder Protection. Main circuits leaving underground substation or transformer stations shall be protected by circuit breakers.

(6) Grounding. All metallic coverings, metal armoring of cables, and the frames and bedplates of generators, transformers and motors shall be effectively grounded.

(7) Identification of Hazard. All high voltage machines and apparatus shall be marked to clearly indicate that they are dangerous, by the use of the words “Danger, High Voltage”.

(8) Protection of Terminals. All terminals on machines, motors, or equipment over medium voltage underground shall be protected with insulating covers or with metal covers effectively connected to ground.

(9) Unauthorized Persons. No person other than one authorized by the mine foremen or mine electrician shall enter a station or transformer room or interfere with the working of any apparatus connected therewith.

(10) Fire Protection. Rock dust or fire extinguishers suitable for extinguishing electrical fires shall be kept at electrical stations and transformer rooms, ready for immediate use.

(j) Fireproof Rectifiers and Transformers. A portable rectifier with dry type transformer, except those using pumped tubes or glass bulb mercury arc tubes, or dry type transformer designed for underground use with adequate automatic electrical protection and substantially of fire-proof construction, fully metal-clad, which will not be in the same location in excess of one year, may be installed in any intake air current, not beyond the last open crosscut and not closer than two hundred and fifty feet along the air route to pillar workings. The location where such fireproof rectifier or transformer is installed need not be made fireproof with masonry or steel, but shall be equipped with doors, grill work or otherwise to prevent entry or access by unauthorized persons.

Section 314. Storage battery equipment

(a) All storage battery equipment and charging stations shall be designed, operated and ventilated so that gas from the batteries will be safely diluted. Storage battery charging stations shall be on a separate split of air.

(b) Smoking or the presence of flammable materials is not permitted in any storage battery room or charging station. Signs to this effect shall be posted in all battery rooms or charging stations.

(c) Storage battery operated equipment may be used in face areas of gassy mines when all electrical parts that it is practicable to enclose are enclosed in explosion-proof casings and the batteries are adequately ventilated.

Section 315. Steam cleaners

(a) Steam cleaning units used underground shall be only electrically operated. Their use shall be confined to repair shops where ventilation shall be arranged to conduct their exhaust to return air with baffles installed to prevent distribution of oil and grease in the return airway.

(b) Machines shall be equipped with a pressure relief valve and a soft plug. Cut-off valves shall not be installed in the discharge nozzle.

(c) The area in which the machine is used shall be cleaned after each operation. Oil, grease and other residue shall be put in metal containers and removed from the mine.

(d) Steam cleaner operators shall be provided with a protective mask when chemical and detergent solvents are used.

Section 316. Electrical face equipment

(a) Voltage Restriction. Motors of electrical face equipment shall not be operated at higher than medium voltage, except as approved by the secretary under section 334 and except those on hand held tools which shall be restricted to low voltage.

(b) Grounding. The frame of all off-track face equipment shall be effectively grounded through a safety ground conductor in its trailing cable, or by an approved grounding device.

(c) Hand Held Tools. Electric drills and other electrically operated rotating tools intended to be held in the hands shall be equipped with an integrally mounted electric switch designed to break the circuit when the hand releases the switch.

(d) Trailing Cables.

(1) Trailing cables for face equipment shall be safely and efficiently insulated and constructed with an outer sheath or jacket of flame resistant material. They shall be approved by the secretary.

(2) Cables for hand held tools shall be especially flexible, heavily insulated and effectively protected from damage.

(3) Each trailing cable in use shall be examined daily by the machine operator for abrasions and other defects, he shall also carefully observe the trailing cable while in use, and shall at once report any defect to the mine official in charge.

(4) In the event of the trailing cable in service breaking down or becoming damaged in any way, or of its inflicting a shock upon any person, it shall be put out of service at once. The faulty cable shall not be used again until it has been repaired and tested by a properly authorized person.

(5) The trailing cable shall be divided at the machine in which it is supplying power, but only for such length as is necessary for making connection to the machine terminals, and the cable, with its outer covering complete, shall be securely clamped to the machine frame in a manner that will protect the cable from injury and prevent any mechanical strain being borne by the single ends connected to the machine terminals.

(6) No more than five temporary splices shall be made in any trailing cable. After the fifth such splice is made, the cable shall be changed before the machine is operated on the following shift. Trailing cables on equipment without cable reels shall have no temporary splices within fifty feet of the machine before the machine is operated on the

following shift. Cable jacket repairs not involving conductors or conductor insulation are not considered temporary splices.

(7) Trailing cables shall be hung or adequately protected to prevent their being run over and damaged by mobile machinery.

(8) Trailing cables on off-track equipment, not provided with an approved grounding device, shall contain a safety ground conductor which shall be solidly connected to the machine frame. A ground continuity test of the cable on each machine shall be made upon completion of each temporary splice in that cable. Cables found to contain defective grounds shall be repaired before use or replaced. The safety ground conductor shall have a cross sectional area of at least fifty percent of that of a single power conductor unless used with ground trip protective systems employing ground fault current limiting devices in which case a smaller safety ground may be used.

(e) Motors. In all mines, all electrical equipment in use inby the last open crosscut shall have all their current carrying parts completely enclosed in explosion-proof enclosures. This shall not include trailing cable, except where terminated, and shall not include flexible cable as required between motors, controllers, terminal boxes and other auxiliaries. These

enclosures shall not be opened except by an authorized person, and then only when the power is switched off. The power shall not be switched on while the enclosures are open.

(f) Safeguarding. The person in charge of electrical face machinery shall not leave such machinery while it is working and shall, before leaving the working place, see that power is cut off the trailing cables.

(g) Explosion Tested Compartments. All explosion tested compartments shall be properly secured with cover clearance tolerances not exceeding four one-thousandths of an inch. Packing glands shall be correctly assembled and the packing compressed by a packing nut tightened to within no less than one-eighth of an inch of its seat.

(h) Detection of Gas.

(1) In working places where explosive or noxious gas is likely to be encountered, an approved safety lamp for the detection of such gas shall be provided for use with each machine when working, and should any indication of gas appear on the flame of the safety lamp, the person in charge shall immediately stop the machine, cut off the current at the nearest switch, and report the matter to a mine official.

(2) In any gassy mine no electrically-operated face equipment shall be taken in by the last open breakthrough until the machine operator shall have made an inspection for gas in the place where the machine is to work, unless such examination is then made by some other competent person authorized or appointed for that purpose by the mine foreman. If any explosive gas is detected in the place by an approved safety lamp, the machine shall not be taken in. The place shall be dangered off until the gas has been removed or rendered harmless.

(3) No electrically-operated face equipment shall be continued in operation in a gassy mine for a longer period than half an hour without an examination as above described being made for gas, and if gas is found the current shall at once be switched off the machine, and the trailing cable shall forthwith be disconnected from the power supply.

(4) The person finding gas shall at once report the fact to the mine foreman, assistant mine foreman or mine examiner and the machine shall not again be started in such place until the mine examiner or a person duly authorized by the mine foreman, has examined it and pronounced it safe.

(5) In any gassy portion of a mine, if any electric sparking or arc be produced, outside of a coal-

cutting or other portable motor, or by the cables or rails, the machine shall be stopped, disconnected from the power supply, and not be worked again until the defect is repaired and the occurrence shall be reported to a mine official.

Section 317. Inspection of equipment

(a) All electrical face equipment shall be inspected by the mine electrician or person designated by him at least once every ten operating days, and, where necessary, shall then be cleaned and repaired.

(b) All electric motors and cables in mechanical sections shall have all excessive coal dust removed from their exterior surfaces once each operating shift.

Section 318. Stationary motors

Every stationary motor underground together with its starting equipment shall be protected by a fuse or circuit breaking device on each ungrounded pole, and by switches arranged to entirely cut off the power from the motor. The above devices shall be installed in a convenient position near the motor, and every stationary underground motor of one hundred brake horsepower or over shall be provided with a suitable meter to indicate the load on the machine.

Section 319. Permanent underground installation

All electrical equipment not covered elsewhere in this act, and except room hoists and gathering pumps, which will remain in the same location for a period of one year or more, shall be completely housed in an incombustible structure built of tile, brick, stone, concrete or of grounded steel plates not less than one-eighth inch in thickness, securely joined.

Section 320. Underground illumination

(a) In all mines the sockets of fixed electric lamps shall be of so-called "weatherproof" type, the exterior of which shall be entirely nonmetallic. Flexible-lamp cord connections are prohibited, except for portable lamps, as covered by rule subsection (c) of this section.

(b) Electric lamps shall be so placed that they cannot come in contact with combustible material.

(c) In gassy mines, portable electric lamps, other than battery lamps, shall not be used in connection with repair and inspection of machines and equipment in face areas. When used elsewhere, they shall be protected by a heavy wire cage completely enclosing both lamp and socket, and shall be provided with a handle to which both cage and socket are firmly

attached and through which the lead-in wires are carried.

(d) Electric lamps, when used in face areas of any mine, shall be installed in explosion-proof enclosures.

(e) Electric lamps shall be replaced by a competent person only, and in face areas of gassy mines, after an examination for gas has been made with an approved safety lamp.

(f) In gassy mines, underground photography using flash bulbs or other sources of artificial illumination shall be prohibited unless immediately preceded by an examination for gas by a qualified person and the place found safe.

Section 321. Telephones and signaling

(a) Telephone service or equivalent two-way communication facilities shall be provided in all mines between the surface and each working section that is more than one thousand five hundred feet from the main portal.

(b) Telephone lines, other than cables, shall be carried on insulators, installed on the opposite side from power or trolley wires, and where they cross power or trolley wires they shall be adequately insulated.

(c) Lightning arrestors shall be provided at the points where telephone circuits enter the mine.

(d) Telephone cables permanently installed on power boreholes containing unarmored power cables shall be either armored or protected at top and bottom by insulating transformers.

(e) All proper precautions shall be taken to prevent electric signal and telephone wires from coming into contact with other electric conductors, whether insulated or not.

(f) Bells, wires, insulators, contact-makers, and other apparatus used in connection with electric signaling underground, shall be of suitable design, of substantial and reliable construction, and erected in such a manner as to reduce the liability of failures or false signals to a minimum.

(g) In the face areas of any mine, the potential used for signal purposes shall not exceed twenty-four volts, and bare wires shall not be used for signal circuits, except on haulage roads.

(h) The potential on signal circuits confined to intake air and using insulated conductors may be greater than twenty-four volts, but shall not exceed one hundred

twenty-five volts average. (This shall not apply to haulage block signal systems.)

Section 321.5. Application of provisions

The following provisions shall apply only to direct-current electrical systems in bituminous coal mines.

Section 322. Grounding

(a) In a direct-current electrical system grounding shall consist in so connecting any part of an electrical system, including frames, to the earth that there shall be no difference of potential between them.

(b) Only the negative side of the direct-current circuit shall be grounded.

(c) Rectifier diodes used at any bituminous coal mine shall be connected to the supply circuit through an isolating winding in order that isolation between alternating current and direct current systems is effected.

(d) The initial installation of rectifiers at any bituminous coal mine shall have the approval of the district mine inspector and the district electrical inspector before being energized.

Section 323. Voltage limitation

In no case shall the potential used in the trolley system be higher than medium voltage.

Section 324. Incoming feeder disconnect switches

Disconnecting switches shall be installed underground in all main direct-current power circuits within five hundred feet of the bottom of shafts, boreholes, or at other places where main power circuits enter the mine.

Section 325. Bonding

Where air (except compressed air blasting lines) or water pipes parallel the grounded return of power circuits, the return shall be securely bonded to such pipes at frequent intervals to eliminate the possibility of a difference of potential between rails and pipes and to prevent electrolysis of the pipes. The rail return shall be of sufficient capacity for the current used, independent of the capacity of the pipes. On main haulage roads both rails shall be bonded (except welded track) and cross bonds shall be placed at points not to exceed two hundred feet apart. On secondary haulage roads, one rail shall be bounded continuously.

Section 326. Trolley installation

(a) All trolley wires and feeder lines installed on underground haulage roads shall be placed as far to one side of the passageway as is practicable, but not less than six inches outside of line of rail, and securely supported upon hangers which shall not be more than twenty-four feet apart, and efficiently insulated.

(b) In all mines, trolley and feeder wires shall not extend beyond the last open crosscut and shall be kept at least one hundred and fifty feet from open pillar workings.

(c) All branch trolley lines shall be fitted with either a trolley switch, circuit breaker, or section insulator and line switch, or some other device that will allow the current to be shut off from such branch headings. Switches or circuit breakers shall be provided on haulage roads to deenergize all trolley and feeder lines at intervals not to exceed two thousand feet.

Section 327. Connections to trolley

(a) All permanent connections to trolley or feeder circuits shall be made with suitable mechanical connectors. No connection, temporary or permanent, shall be wrapped or tied.

(b) Temporary connections for portable or face equipment may be made through fused trolley taps.

(c) Safety ground and negative connections for temporary or permanent installations shall be made directly to the track, a bond, or the system ground.

Section 328. Guarding

At all landings and partings or other places where men are required to regularly work or pass under trolley or other bare power wires, which are placed less than six and one-half feet above top of rail, a suitable protection shall be provided. This protection shall consist of placing boards along the wire, which boards shall not be more than five inches apart, nor less than two inches below the lowest point of the wire: Provided, That the distance between boards on curves may exceed five inches, but shall not exceed eight inches. This does not prohibit the use of other approved devices or methods furnishing equal or better protection.

Section 329. Locomotives

(a) Electric haulage by trolley locomotive is not permitted in any gassy mine except on intake air.

(b) It shall be unlawful in any gassy mine to run or operate a locomotive, fed directly or indirectly from a

trolley wire, by the open entrances to worked out places wherein the pillars have been drawn or places in which the pillars have not been drawn but in which places the roof has collapsed.

(c) No open-type electric locomotive or open-type electric machine of whatsoever name shall be taken into a working place or places in a gassy mine. Main return airways (or passageways) shall not be used as haulageways for electric locomotives operated from a trolley wire in gassy mines: Provided, however, That if at any time after the effective date of this act a mine classed as non-gassy should be declared gassy under the provisions of this act, the operator of such mine shall, within the six months immediately following such reclassification, discontinue the use of open-type electric locomotives or open-type electric machines of any kind in a working place or places in such gassy mine or portion thereof. Upon written request from the operator of any such mine, the secretary, after investigation, shall have authority to grant an additional six month period to such operator to discontinue the use of such locomotives or machines.

Section 329.5. Application of provisions; system components; basic system; resistor ground connection

(a) The following provisions shall apply to alternating current electrical systems serving portable

face equipment in bituminous coal mines. The fundamental components of such a system are (1) the outdoor substation through which power is fed to the mine, (2) high voltage underground transmission system, (3) section transformers or load centers which step the transmission voltage down to machine utilization voltage, and (4) distribution centers used to distribute utilization voltage to mining machinery. The latter may be an integral part of the section transformer or load center (3).

(b) The basic system for both transmission and distribution of alternating current power to face equipment shall be a three-phase four-wire system, with a ground fault current limiting resistor in the neutral circuit and the inby or load end of the neutral resistor solidly grounded. The ground end of the neutral resistor shall be connected to equipment frames through the cable ground conductor to prevent dangerous differences of potential between frame and ground under fault conditions.

Section 330. Outdoor substation

The outdoor substation shall be built in accordance with current Institute of Electrical and Electronics Engineers' standards and shall include--

(1) Protective fence or enclosure.

(2) Primary or incoming line lightning arrestors.

(3) Positive disconnecting means on the incoming or primary line with a circuit breaker or fuses to interrupt safely any current, normal or abnormal, which might be encountered.

(4) Transformer bank to convert the incoming or primary voltage to the transmission voltage. The use of auto-transformers for this purpose is prohibited. Secondary or underground transmission voltage shall not exceed fifteen thousand volts, nominal, phase to phase. The transformer may be connected delta-wye, wye-delta, or delta-delta. Wye-wye connections shall not be used because of voltage instability under some conditions of load. In the event that the secondary winding is delta-connected, the neutral necessary for the four-wire transmission circuit shall be derived by use of a three-phase "zig-zag" or grounding transformer. Where such grounding transformers are used, they shall be of sufficient capacity to carry maximum ground fault current continuously. Should the substation primary or supply voltage equal the mine transmission voltage, the main transformer bank may be omitted and the "zig-zag" transformer used to derive a system neutral if one is not otherwise available.

(5) Secondary lightning arrestors.

(6) Ground fault-current limiting resistor capable of continuously limiting ground fault current to fifty amperes or less. The resistor shall be adequately insulated and shall be protected by a grounded fence or screen unless mounted eight feet or more above ground.

(7) A secondary or mine feeder circuit breaker with interrupting capacity adequate for any possible condition of fault and no less than the short circuit capacity of the system supplying power to the breaker. Positive disconnect means shall be provided on the input and output side of the breaker. Use of automatic reclosing circuit breakers is prohibited. Breaker automatic tripping shall be through protective relays and shall provide as a minimum tripping, by undervoltage, instantaneous and inverse time limit phase overcurrent, ground fault current not exceeding fifteen amperes and ground-continuity check not exceeding seven amperes. The ground-continuity check-circuit shall continuously monitor the integrity of the neutral circuit leading underground and shall cause the breaker to open when either the ground or pilot check wire is broken. An ammeter capable of reading current in each phase and a voltmeter capable of reading phase-to-phase voltage shall be provided at the circuit breaker.

(8) Surge protection or station ground bed to which shall be connected all lightning arrestor grounds,

substation equipment frame grounds, fence (if metallic) and substation structure (if metallic). There shall be no direct connection between this ground bed and either the grounded side of the mine direct current system or the neutral ground bed described below.

(9) Neutral or primary ground bed located at least twenty-five feet away from the station ground at its closest point and to which shall be connected only the inby or load end of the neutral current limiting resistor. To prevent current transformer core saturation by stray direct current return currents, or neutral conductor damage, there shall be no direct or metallic connection between any point of the high voltage alternating current neutral circuit and the mine direct current ground.

(10) Ground bed resistance shall be measured at least every six months and appropriate action taken to assure the maintenance of the lowest possible value of ground resistance. A record of these resistance measurements shall be kept in a book provided for that purpose.

Section 331. High voltage underground transmission system

(a) High voltage cables leading underground and extending underground shall be of the multiple conductor flame resistant type with either a rubber,

plastic or armor sheath meeting the requirements of the department for flame resistance. They shall be equipped with metallic shields around each power conductor. One or more ground conductors shall be provided of a total size either (1) not less than one-half the power conductor size, or (2) capable of carrying two times the maximum ground fault current. There shall also be provided an insulated conductor not smaller than No. 10 AWG for the ground continuity check circuit. Cables shall be adequate for the intended current and voltage. Splices made in the cable shall provide continuity of all components and shall be made in accordance with the cable manufacturers' recommendations. The making of such splices shall be supervised by a competent person designated by the mine electrician.

(b) High voltage cables subject to repeated flexing shall be similar in construction to type SH-D in accordance with Insulated Power Cable Engineers Association standard S-19-81.

(c) If couplers are used, they shall be of the three-phase type with a full metallic shell, and shall be adequate for the voltage and current expected. All exposed metal on the couplers shall be grounded to the ground conductor in the cable. The coupler shall be constructed so that the ground continuity conductor shall be broken first and the ground conductor shall be broken last when the coupler is being uncoupled.

(d) At locations where cables cross haulage-ways or travel-ways or where equipment must pass over or under the cable, they shall be either installed in a trench in the roof, protected by some mechanical means, or buried at least twelve inches below combustible material and adequately protected from crushing by the weight of equipment passing over it.

(e) High voltage cables shall be installed only in intake airways. They may be installed on intake haulage-ways only with written approval of the secretary. Such cable may be installed by hanging on suitable hooks or clamps, or by supporting by a suitable messenger cable, or by burying or by installation in metal conduit. When suspended, distance between supports shall not exceed twenty feet and they shall be so placed that they do not damage the cable jacket. When hung in a haulage entry containing a trolley wire, the cable shall be installed at least twelve inches from the trolley wire or feeder wires and away from the track.

(f) Any excess cable which is connected and supplying a load shall be coiled, stored on a reel, or otherwise stored, at a place near the load where it can be protected by dangling off the place. Such cable shall not exceed one thousand feet in length.

(g) Frames and enclosures of high voltage switch units, transformers, metallic cable couplers, and splice boxes shall be grounded to the common or primary ground for the system in the high voltage cable.

(h) Taps or branch circuits from the high voltage feeder shall be made through circuit breakers adequate to interrupt any fault current which might occur. Relaying protection on such breakers shall include instantaneous and inverse time limit phase overcurrent, under-voltage, ground fault and ground continuity check functions. A separate ground continuity check circuit originating at the branch circuit breaker shall be extended into each branch and shall be connected to ground at the frame of the load served. The ground continuity check circuit shall be so wired that the ground wire or ground continuity conductor or any connection on either wire cannot be broken without interrupting the check circuit unless such break occurs on a branch which has been disconnected. A suitable load break switch may be used in lieu of a circuit breaker provided that the ground continuity check circuit shall be wired as provided in subsection (h) of this section.

(i) When nonload breaking disconnect switches are used for sectionalizing high voltage circuits, they shall be fully metal clad, equipped with a door interlock to break the ground continuity check circuit, thus tripping the feeding breaker when the door is open,

and a voltmeter or indicating lights to verify that the circuit is deenergized before the disconnect switches are opened.

Section 332. Load center

Transmission voltage shall be reduced to machine utilization voltage by a portable transformer or load center of adequate capacity for the equipment powered by it. The transformer shall be of the dry type, ventilated, nonventilated, or sealed, substantially constructed and completely enclosed in a metal case. The metal enclosure shall be connected to the high voltage system ground conductor in the high voltage cable. Complete load center construction shall render it essentially fireproof. In addition to these requirements, the following shall be observed.

(1) Connection of the high voltage cable to the load center shall be made through a cable coupler of the type described in subsection (c) of section 331.

(2) The load center shall be equipped with a positive disconnect means on the incoming or high voltage circuit. This may consist of a circuit breaker, load break switch, disconnect switch, or other device.

(i) If a circuit breaker is used for this purpose, it shall be equipped with instantaneous and inverse

time limit phase overcurrent and undervoltage relaying protection.

(ii) If a device other than a circuit breaker is used, it shall be so arranged that it cannot be operated until the ground continuity check circuit in the high voltage cable has opened causing the nearest feeding circuit breaker to trip.

(3) The restriction of subsection (d) of this section pertaining to transformer connections and use of zig-zag grounding transformers also apply to the load center.

(4) The transformer secondary neutral, direct or derived, shall be connected to machine trailing cable safety ground conductors through a ground current limiting resistor capable of limiting ground fault current to twenty-five amperes or less. The inby side of this resistor shall be grounded to the load center frame if no D.C. equipment powered from a common mine D.C. system can contact the frames of A.C. equipment powered by this load center. In the event there is a possibility of frame contact between A.C. equipment and D.C. equipment supplied from a common D.C. mine system, the inby side of this resistor may be insulated from the load center frame and shall be solidly connected to the D.C. ground system.

(5) The load center shall be equipped with a main secondary breaker of adequate interrupting capacity with tripping devices which shall feed individual machine breakers located either in the load center or external to it in a separate distribution center. External utilization voltage connections shall be made through receptacles so arranged that they cannot be uncoupled under load.

(6) Load centers shall be located on intake air only. Load centers shall not be located beyond the last open crosscut and shall not be located closer than two hundred and fifty feet along the air route to pillar workings.

Section 333. Distribution centers

(a) Distribution centers may be used to distribute utilization power to portable equipment. The distribution center may be connected to the load center through one or more cables or conductors protected by flame resistant jackets with combined capacity sufficient to carry the maximum loads which may be encountered. The distribution center shall contain breakers adequate to interrupt any fault current which might occur, which shall feed each unit of equipment which is connected to the distribution center. Each breaker shall be equipped with tripping devices which will function on overload, phase fault, and ground fault. Distribution centers shall be located on intake air

only, and shall not be located beyond the last open crosscut nor shall be closer than one hundred fifty feet from pillar workings unless the distribution center shall have an approved explosion-proof enclosure.

(b) Utilization voltage cables shall be fitted with plug couplers and provision made so that cables cannot be uncoupled under load. All plugs and sockets shall be substantially constructed and any exposed metal portions shall be grounded. Couplers shall be constructed so that the ground conductor connection is broken last during uncoupling.

(c) Utilization voltage conductors, cables, or conductor groups shall contain one or more ground conductors which combined shall be able to carry safely and continuously at least twice the maximum ground fault current.

(d) A combined alternating and direct current distribution or load center complete within a substantially fireproof metal enclosure, with a dry type transformer and solid state rectifier and adequate automatic electrical protection, may be used to distribute alternating and direct current utilization power. The power supply to this unit may be low, medium or high voltage. When high voltage is utilized, the requirements of section 332 shall apply. When medium or low voltage is utilized, section 333 shall apply. However, when an external D.C.

distribution device is employed, the rectifier output may be taken through a main D.C. circuit breaker to that device without the use of a plug and receptacle system.

Section 334. Technological improvement

(a) The secretary shall recognize, encourage, and permit the adoption and use of alternative or new methods, materials, machinery, equipment, supplies, tools, devices, and processes in carrying out the provisions of this act pertaining to electricity in bituminous coal mines when such alternates provide protection to personnel and property equal to or in excess of the requirements set forth in any portion of this act. Any operator proposing use of such alternate or new methods, materials, machinery, equipment, supplies, tools, devices, and processes shall notify, in writing, the secretary describing such proposal in detail.

(b) Upon receipt of this proposal, it shall be given preliminary review by the secretary. If such review indicates that the proposal has potential merit, the secretary may, at his discretion, appoint either a commission or a committee consisting of three representatives of the department, three operators' engineers, a representative of the mine employees, and any others he deems pertinent. Such commission or committee shall investigate and review said proposal

to determine its effect on safety and property and report their findings in writing to the Secretary of the Department of Environmental Protection.

(c) If either the secretary, commission or committee recommends disapproval, their report shall include specific references to the requirements and standards of this act which the proposal violates and shall also specify the manner in which it fails to provide personnel and property protection equal to or in excess of such requirements or standards.

(d) Upon the approval of the commission or committee, the secretary shall forthwith issue a permit approving the alternate or new methods, materials, machinery, equipment, supplies, tools, devices, and processes.

ARTICLE IV ACCIDENTS

Section 401. Explosion or accident; investigation by Department of Environmental Protection; Inquests

(a) Whenever a serious or a fatal accident occurs in or about any bituminous coal mine, or whenever an explosion, fire or other serious accident of an unusual nature occurs, whether fatal or not, it shall be the duty

of the superintendent or mine foreman in charge of such mine to give notice thereof forthwith, by telephone or telegraph, to the mine inspector in the district. The mine safety committee of the employees of such mine shall also be notified.

(b) If the coroner shall determine to hold an inquest, he shall notify the mine inspector of the time and place of holding the same, and the mine inspector in the district shall offer such testimony as he may deem necessary to thoroughly inform the said inquest of the cause of the death. He shall also have authority at any time to appear before such coroner or jury and examine or cross-examine any witness. No person who is, directly or indirectly, interested or employed in any capacity by the person, persons, or company owning or operating such mine, or employed in or about any other mine in which such owners or operators may be interested, shall be eligible to serve upon such coroner's jury.

(c) It shall be the duty of the mine inspector in the district, upon being notified of any fatal accident as hereinbefore provided, to proceed in person as soon as practicable to the scene of the accident, and make such suggestions or give such directions as may appear to him necessary to secure the safety of any person who may still be endangered through said accident. The said mine inspector shall proceed to investigate and ascertain the cause of the accident, and make a record

thereof, which he shall file as provided for; and to enable him to make the investigation he shall have power to compel the attendance of persons to testify, and also to administer oaths or affirmations. If it is found, upon investigation, that the accident is due to the violation of any of the provisions of this act by any person other than those who may be deceased, the mine inspector in the district shall institute appropriate proceedings against such person or persons.

Section 402. Scene of accident; preservation of evidence

Following a mine accident resulting in the death of one or more persons and following any mine disaster, the evidence surrounding such occurrence shall not be disturbed after recovery of bodies or injured persons until an investigation by the department has been completed: Provided, however, That sufficient wreckage or debris may be moved to allow recovery work after disasters or continued general operation of the mine following fatalities not caused by mine fires or mine explosions.

ARTICLE V REPORTS; COMPLIANCE

Section 501. Annual and monthly reports by operators of bituminous coal mines

(a) On or before January 25 in each year, the operator or the superintendent of every bituminous coal mine shall send by registered mail to the mine inspector in the district a correct report, specifying, with respect to the year ending December 31 preceding, the name of the operator and officers of the mine, number of tons of coal mined, number of tons of coke manufactured, number of different employees, classified, and the total number of days worked during the year. The report shall be in such form, and give such information regarding the mine, as may be, from time to time, required and prescribed by the secretary.

(b) On or before the tenth day of each month, the superintendent shall send to the mine inspector in the district, a report of the tonnage produced, and days worked for the preceding month, and also a report in detail of all lost time injuries in or about the mines for the preceding month.

(c) Whenever any employee who has been injured is reported able to resume work, the superintendent shall report the same immediately to the mine inspector in the district.

(d) For the purpose of verifying the accuracy of the tonnage reports required by this section, the secretary, or any employee of the department appointed by him, is hereby authorized to examine all the shipping documents of any operator or superintendent. The refusal of any operator or superintendent to submit to such examination, or exhibit its or his shipping documents for inspection, shall be presumptive evidence that the operator or superintendent has failed to comply with the tonnage report requirements of this section. For the purpose of this subsection, "shipping documents" shall be defined as any records relating to the transportation, movement or delivery of coal from the mine or cleaning plant to the customer or purchaser of such coal, including, but not limited to, bills of lading, invoices, weighman's slips, delivery receipts, shipping receipts, and contract carrier statements.

All information obtained by such examination, other than tonnage figures, shall be held confidential and shall not be released by the department or its employees for any purposes whatsoever.

ARTICLE VI AUGER MINING

Section 601. Permit required

No auger mining shall be conducted by any person without securing a permit issued by the department. Such permit shall be on a form prescribed by the secretary. Such permit shall not be unreasonably withheld.

Section 602. Duties of operator

It shall be the duty of the operator to see that all work is performed in a safe manner.

Section 603. Special requirements

(a) Auger crews shall carefully inspect the face of the highwall, twenty-five feet on both sides of the drilling site before augering operations begin and frequently thereafter, and all loose material shall be removed before any work is done. Special precautions shall be taken during intermittent freezing and thawing weather and periods of heavy rainfall. Drilling shall not be done under an overhang.

(b) When a crew is engaged in connecting or disconnecting auger sections under a highwall,

observations shall be made of the highwall for possible movement.

(c) Auger mining shall not be done in proximity to active underground workings, unless the work is coordinated with the underground plan of workings. Auger holes shall not be drilled so as to--

(1) Disrupt the ventilation systems of active underground mines.

(2) Create inundation hazards to active underground mines.

(3) Cause damage to the roof and ribs of active underground roadways.

(d) Auger holes shall not intersect underground mine workings known to contain or suspected to contain dangerous quantities of impounded water, except to drain such areas under controlled conditions and then only after all necessary precautions have been taken to safeguard life and property.

(e) When auger holes first penetrate abandoned or mined out underground workings and as frequently thereafter as these workings are penetrated, a qualified employee shall determine by an approved means of detection whether or not methane or oxygen-deficient air is present or is being emitted in dangerous

quantities and shall make a record of these inspections and findings.

(f) Auger mining equipment shall not be operated in the vicinity of auger holes emitting dangerous quantities of methane or oxygen-deficient air until the atmosphere has been rendered harmless.

(g) Pillars between auger holes shall be wide enough to support the overburden adequately.

(h) The depth and direction of auger holes shall be plotted on the mine map required by this act, which map shall show adjacent mined areas.

(i) Auger operators shall not leave the controls while drills are being operated.

(j) No persons, including the auger machine operator, shall be in a direct line with the bore holes during mining operations.

(k) No person shall enter an auger hole until a qualified employee has determined by an approved means of detection whether the air within the hole is of good quality and does not contain methane or is deficient in oxygen. The examiner shall wear a lifeline that extends to the hands of a person on the surface.

(l) Internal combustion engines in the vicinity of auger holes shall be stopped while auger holes are being inspected.

(m) At least one approved safety lamp or other approved device for determining methane and oxygen-deficient air shall be available at each auger machine for the use of qualified employees.

(n) Persons entering an auger hole shall examine and test its walls for danger from falling materials. Any hazardous conditions found shall be corrected immediately or before any other work is done. Otherwise, the hole shall be vacated and fenced off and a suitable danger sign be placed across its entrance.

(o) Mechanically operated grinding wheels shall be equipped with--

(1) Safety washers and tool rests.

(2) Substantial retaining hoods covering two-thirds of the circumference of the wheel.

(3) Eyeshields or goggles shall be used.

(p) A substantial screen or grating shall be provided over auger machines strong enough to prevent injury to workmen by spalling material from the highwall or

the machine shall be kept a safe distance from the highwall.

(q) Auger machines shall be equipped with adequate means to slow the operation when hard drilling causes arcs or sparks or overheating of the cutter head.

(r) The angle and setting of the bits shall be maintained to permit clearance of not less than one-fourth inch between the drum and the auger hole to minimize friction and overheating.

(s) Exhaust gases from internal combustion engines shall be conducted away from auger holes and the working area for the protection of the workmen and to prevent ignitions of gas or dust emanating from such holes.

(t) Exhausts shall be equipped with mufflers to reduce noise, guarded where necessary to prevent burns, and extended at least to the height of the machinery.

(u) Warning signs shall be posted conspicuously at the entrances to abandoned auger operations and at strategic locations along the out-crop line where coal has been mined with augers.

(v) Completed auger holes shall be blocked with spoil, piled to a minimum height of three feet above

the coal bed and to within one thousand feet of the active holes. Auger holes shall be blocked before the operation is abandoned.

(w) Combustible materials, dinner pails or other supplies shall not be stored in abandoned auger holes.

(x) Partitions of coal between auger holes shall not be recovered.

(y) Any employee who discovers an unsafe condition at the auger mine shall immediately report it to the person in charge.

(z) Each auger mine operation shall have an adequate supply of first-aid equipment at strategic locations. The first-aid supplies shall be encased in suitable sanitary receptacles, designed to be reasonably airtight, and shall be available to all persons employed at the mine. In addition to the material in the cases, splints, blankets, and properly constructed stretchers in good condition shall be provided. When an injury occurs, prompt medical attention shall be provided. Adequate facilities shall be available for transporting injured persons to a hospital when necessary.

(aa) Smoking or open lights shall be prohibited in or near auger holes.

ARTICLE VII MISCELLANEOUS PROVISIONS

Section 701. Compliance and construction

Whenever any equipment or supplies required by this act, including rock-dusting machines, and approved electric equipment, are unobtainable in the normal course of business, as determined by the secretary, compliance with the requirements of this act with respect thereto is suspended so long as such items remain unobtainable. Due allowance shall also be made for planning, institution of change procedures, and installation of new equipment.

Section 702. Adoption of new items or methods

Nothing in this act shall be construed to prevent the adoption or use by any operator of new machinery, equipment, tools, supplies, devices, methods and processes, if such new machinery, equipment, tools, supplies, devices, methods and processes accord protection to personnel and property substantially equal to or in excess of the requirements set forth in any portion of this act.

Section 703. Criminal penalties

Any person who shall intentionally or carelessly disobey any order given in carrying out the provisions of this act, or do any other act whatsoever, whereby the lives or the health of the persons employed, or the security of the mine or the machinery, are endangered, or who neglects or refuses to perform the duties required of him by this act, or who makes any false statement in any report required by this act, or who is responsible for failure to comply with any decision made in accordance with this act, or who violates any of the provisions or requirements thereof, shall be deemed guilty of a misdemeanor, and shall, upon conviction thereof in the court of quarter sessions of the county in which the misdemeanor was committed, unless otherwise specified hereinbefore, be punished by a fine not exceeding two hundred dollars (\$200), or imprisonment in the county jail for a period not exceeding three months or both, at the discretion of the court.

Section 704. Severability

If any provision of this act or the application of such provision to any person or circumstances shall be held invalid, the remainder of the act and the application of such provision to persons or circumstances, other than those as to which it is held invalid, shall not be affected thereby.

Section 705. Specific repeals

(a) The following acts and all amendments thereof are repealed absolutely:

(1) The act of June 9, 1911 (P.L. 756), entitled "An act to provide for the health and safety of persons employed in and about the bituminous coal-mines of Pennsylvania, and for the protection and preservation of property connected therewith".

(2) The act of May 31, 1923 (P.L. 481), entitled "An act providing for the appointment of boards of examiners to examine applicants for certificates of qualification as mine foremen, assistant mine foremen, and fire bosses in the bituminous coal mines of this Commonwealth; prescribing the qualifications; defining the powers and duties, and fixing the compensation of such examiners; authorizing the Chief of the Department of Environmental Protection to determine the district in which boards of examiners shall hold examinations, and to designate the boards before whom applicants in the various inspection districts shall appear; providing for the issuance of certificates of qualification to successful applicants; fixing the fees to be paid by applicants, and providing for their disposition; forbidding the employment of unqualified persons as mine

foremen, assistant mine foremen, and fire bosses; providing a penalty for forging or making false statements regarding certificates".

(3) The act of April 29, 1937 (P.L. 551), entitled "An act prohibiting the employment of miners as herein defined in the bituminous coal mines unless certificated by a miners' examining board providing for the appointment of such boards and defining their powers and duties providing penalties and making an appropriation".

(4) The act of June 25, 1937 (P.L. 2121), entitled "An act providing for the examination and certification of, and regulating the employment of mine electricians in bituminous coal mines; imposing duties upon the mine foremen's examining board, and the Secretary of Mines; and providing penalties".

(5) The act of June 25, 1937 (P.L. 2122), entitled "An act providing for the examination and certification of, and regulating the employment of shot-firers and mining machine runners employed in gaseous bituminous coal mines; imposing duties upon the Secretary of Mines; and providing penalties".

(b) The following acts and all amendments thereof are repealed in so far as they apply to bituminous coal mines:

(1) The act of March 3, 1870 (P.L. 3), entitled "An act providing for the health and safety of persons employed in coal mines".

(2) The act of June 30, 1885 (P.L. 202), entitled "An act to prevent the employment of female labor in and about the coal mines and the manufactories thereof in the State of Pennsylvania".

(3) The act of June 15, 1911 (P.L. 979), entitled "An act to safeguard life in the coal-mines of the Commonwealth of Pennsylvania, and to protect and preserve the property connected therewith, by providing that all inside buildings shall be constructed of incombustible material; and providing penalties for failure to comply with the terms of this act, and making a violation thereof by mine superintendents a misdemeanor".

(4) The act of April 25, 1945 (P.L. 289), entitled "An act providing for the health and safety of persons employed in and about the coal mines of the Commonwealth of Pennsylvania; the protection and preservation of property connected therewith; the appointment of electrical inspectors by the Secretary of Mines with the consent and approval of

the Governor; the fixing of their salaries and necessary expenses incurred in the performance of their duties; and the fixing of the qualifications which shall be possessed by persons appointed to the position of electrical inspector."

(5) The act of May 15, 1945 (P.L. 526), entitled "An act relating to the use of trailing cables on portable electric machinery in coal mines; providing for the health and safety of persons employed therein, and for the protection and preservation of property connected therewith, and for the inspection of such equipment by the Department of Environmental Protection".

(6) The act of May 29, 1945 (P.L. 1132), entitled "An act providing for the health and safety of persons employed in and about coal mines in the Commonwealth of Pennsylvania; the protection and preservation of property connected therewith; the appointment of first aid and mine rescue instructors by the Secretary of Mines, with the approval of the Governor, fixing their salaries and qualifications; providing for the purchase of trucks and necessary equipment to carry on the work; and making an appropriation therefore".

(7) The act of May 26, 1949 (P.L. 1846), entitled "An act fixing the salaries of State mine inspectors under the jurisdiction of the Department of

Environmental Protection and the expenses incident to their office".

(8) The act of December 28, 1951 (P.L. 1801), entitled "An act regulating the use of machinery powered by internal combustion engines or motors in coal mines".

(9) The act of April 4, 1956 (P.L. 1395), entitled "An act relating to the use of conveyor belts in coal mines; providing for the safety of persons employed therein, and the protection of property connected therewith; conferring powers and imposing duties upon the Department of Environmental Protection; and prescribing penalties".

Section 706. General repeal

All other acts and parts of acts are repealed in so far as they are inconsistent herewith.

GENERAL PROVISIONS EMERGENCY MEDICAL PERSONNEL

Section 1. Definitions

As used in this act:

"Emergency medical technician" means a coal mine employee who has successfully completed the course on emergency first-aid care and transportation of the sick and injured recommended by the American Academy of Orthopedic Surgeons or the equivalent thereof, and has been certified by the Department of Health to provide emergency care.

"Emergency medical technician paramedic" means a person who has been certified by the Department of Health to provide emergency medical treatment.

"Mine" means any surface or underground coal mine as defined in the Federal Coal Mine Health and Safety Act of 1969, Public Law 91-173, s 3(h), 30 U.S.C. s 802(h).

Section 2. Emergency medical personnel in coal mines

(a) Emergency medical personnel shall be employed in every mine as follows:

(1) Within two years from the effective date of this act, all mines shall be equipped by the operator thereof as follows:

(i) At least one emergency medical technician shall be on duty at a mine at any time when miners at that mine are engaged in the extraction, production, or preparation of coal. Emergency medical technicians shall be on duty at a mine in sufficient numbers to assure that no miner shall work in a mine location that cannot be reached within a reasonable time by an emergency medical technician. Emergency medical technicians shall be employed on their regular mining duties at locations convenient for quick response to emergencies, and further shall have available to them at all times necessary equipment in compliance with Federal regulations.

(ii) Telephone service or equivalent facilities shall be installed which will provide two-way voice communication between the emergency medical technician in the mine and medical personnel outside the mine who provide emergency medical services on a regular basis.

(iii) On or before July 1, 1978, operators of coal mines shall make adequate provisions so that at least one emergency medical technician

paramedic, registered nurse, physician, or physician's assistant shall be available to provide care at a mine at any time that miners at the mine are engaged in the extraction, production or preparation of coal, and such emergency medical technician paramedic, registered nurse, physician or physician's assistant shall be on call to reach the entrance of the mine within 30 minutes.

(b) Notwithstanding any other provision of this act, emergency medical personnel shall be employed in surface coal mines as follows:

(i) If 20 or more persons are employed on a shift, all of the provisions of this act shall apply. A shift shall include all persons working at the different locations of a mine.

(ii) If a mine has employees working at different locations within a radius of not more than ten miles or a lesser number of miles as may be determined by the Department of Environmental Protection and said locations are connected by telephone service or equivalent facilities, an emergency medical technician or the equivalent at any location on the shift shall be deemed to be compliance with the provisions of this act.

(iii) If less than 20 persons are employed on a shift, an ambulance service with three members certified

as emergency medical technicians, not necessarily coal employees, located within a radius of ten miles, or such other distance as may be approved by the Department of Environmental Protection upon request for and approval of a variance thereto, shall be deemed to be in compliance with the provisions of this act.

(iv) If an area ambulance service is not available, three persons, not necessarily coal employees, possessing certification as an emergency medical technician, or the equivalent thereof, residing within a radius of ten miles, or such other distance as may be approved by the Department of Environmental Protection, upon request for and approval of a variance thereto; for which on-call service has been arranged, shall be compliance with the provisions of this act.

Section 3. Regulations for training and certification

The Department of Health shall make rules and regulations as may be necessary to train and certify emergency medical technicians and emergency medical technician paramedics.

Section 4. First-aid training of coal mine employees

Each coal mine operator shall provide every new employee who shall not have received the initial training hereunder within six months of the date of his employment with the opportunity for such first-aid training as shall be prescribed by the Department of Environmental Protection after consultation with the Department of Health, the Mining Enforcement and Safety Administration of the United States Department of the Interior, representatives of the miners and of the coal mine operators. Each coal mine employee shall be provided with opportunity for refresher first-aid training of not less than five hours within each 24 months of employment. The employee shall be paid regular wages, or overtime pay if applicable, for all periods of first-aid training.

Section 5. Continuing training

The Department of Environmental Protection, after consultation with the Department of Health regarding the content of instruction courses, shall provide for necessary training on a continuing basis of emergency medical technicians and emergency medical technician paramedics in sufficient numbers to satisfy the requirements of this act and shall propose rules and regulations to implement the operational provisions of this act to the Environmental Quality Board.

Section 6. Certification

The Department of Health shall prescribe such procedures as may be necessary to certify emergency medical technicians and emergency medical technician paramedics and consult with the Department of Environmental Protection as may be required hereunder.

Section 7. Liabilities

(a) No physician, who in good faith gives instructions to a certified emergency medical technician or emergency medical technician paramedic, a registered nurse, or physician's assistant shall be liable for any civil damages as a result of issuing the instructions, unless guilty of gross or willful negligence.

(b) No certified emergency medical technician or emergency medical technician paramedic, registered nurse, or physician's assistant who in good faith attempts to render emergency care to any sick or injured person in or about a coal mine, shall be liable for civil damages as a result of any acts or omissions, unless guilty of gross or willful negligence.

Section 8. Equivalent training

The Department of Environmental Protection may determine that a coal mine operator is presently providing emergency medical care for its employees which is equivalent to or superior to the emergency medical care provided for hereunder; and, in that event, it shall make a finding that such operator is in compliance with this act.

Section 9. Regulations for operational provisions

The Environmental Quality Board shall make rules and regulations to implement the operational provisions of this act.

Certified Mine Officials Act

CHAPTER 1. GENERAL PROVISIONS MINE FOREMEN AND ASSISTANT FOREMEN

1. Foreman, assistant foremen and fire bosses deemed officers of Commonwealth; time of performance of duties

Every mine foreman, assistant mine foreman or fire boss, under the provisions of the Bituminous mining laws or the Anthracite Mining Laws, shall represent the Commonwealth in the coal mine or colliery in

which he is employed and be deemed to be an officer of the Commonwealth in enforcing the provisions of said Mining Laws and performing his duties thereunder. He shall perform said duties during such times as the mine or colliery in which he is employed is in operation, and at such other times as in the judgment of the operator or the Secretary of Mines shall be necessary or desirable to make the mine or colliery safe for operations or to protect the health and safety of the employees of the operator or the safety of the mine or colliery properties.

2. Complaints of neglect of duties; hearings; suspension of certificates

Upon complaint of any mine inspector that a mine foreman, assistant mine foreman or fire boss has failed or refused to perform any duty with which he is charged under the provisions of the law, or has engaged in any acts or activities interfering with the safe and lawful operation of any mine or colliery, specifying the particular acts, failure or refusal, the Secretary of Mines, or in his absence or incapacity to act, any deputy secretary, may, after written notice to such official, setting forth said complaint, a hearing thereon and appropriate findings as hereinafter provided, suspend for a period of not more than one year, or revoke absolutely, the certificate of such mine foreman, assistant mine foreman or fire boss. The Secretary of Mines, upon receiving any such

complaint, shall have the power, if he deems such action advisable, forthwith to suspend the certificate of such official temporarily until such hearing and determination of the charges have been completed.

3. Conduct of hearings; notice; record; brief or argument; findings and order

Said hearings shall be conducted by the Secretary of Mines or a deputy secretary, or other qualified representative of the Commonwealth delegated in writing by the secretary, at such time and place in the district where the official charged is employed, as the person conducting the hearing shall designate, and on not less than five (5) days' written notice thereof. The official charged, the operator of the mine or colliery in which said official was employed, or his or its representative, shall have the right to appear at said hearing, in person, to be represented by counsel to present testimony and other evidence material to said charge, and to examine witnesses. All testimony taken at such hearing shall be under oath and shall be reduced to writing by a competent person designated by the Secretary of Mines. The person conducting said hearing shall cause to be compiled and filed with the Secretary of Mines, a complete record of said hearing. Within ten (10) days following the close of such hearing, any party to the proceeding may file with the Secretary of Mines a written brief or argument. The Secretary of Mines shall, within thirty

(30) days following the close of such hearing, make findings based on the evidence and shall embody such findings in an order, determining the charges and stating the action taken thereon. Such findings and order shall be served upon all parties to the proceeding, either personally or by registered mail, within (10) days after such findings. The Secretary of Mines shall have authority, from time to time, to make, amend and rescind rules and regulations relating to the conduct of hearings under this act.

4. Review by common pleas; modification of orders; re-examination

The Secretary of Mines shall have the right at any time to modify his order embodying such action. Any official whose certificate has been revoked shall have the right after one (1) year to appear before the proper Mine Foremen's Examining Board and be re-examined, and if he satisfies the board that he is then qualified to perform his duties and passes a satisfactory examination, he shall be given another certificate of qualification.

5. Oaths and affirmations; witnesses; subpoenas

For the purpose of carrying out the provisions of this act, the Secretary of Mines or any deputy secretary or other person delegated by the secretary to conduct a hearing, as herein provided, shall have the power to

administer oaths and affirmations, examine witnesses, receive evidence and issue subpoenas requiring the attendance and testimony of witnesses and the production of any evidence that relates to any matter under investigation. In case of refusal to obey any subpoena issued to any person, any court of common pleas within the jurisdiction where the hearing is held or within the jurisdiction where the person guilty of refusal to obey is found or resides or transacts business, shall, upon application of the Secretary of Mines or his authorized representative, have power to enforce such subpoenas in contempt proceedings.

6. Service of orders, process and papers

Orders and other process and papers of the Secretary of Mines under this act may be served, either personally or by registered mail, or by leaving a copy thereof with some adult person at the home or principal office or place of business of the person required to be served. The verified return by the individual so serving the same, setting forth the manner of serving, shall be proof of the same and the return post office receipt therefore, when registered and mailed, shall be proof of service of the same.

7. Uncertificated officials; proceedings against; reinstatement

Any person without a certificate employed to perform the duties of mine foreman, assistant foreman or fire boss under the provisions of the Bituminous or Anthracite Mining Laws, who fails or refuses to perform his duties or who engages in any acts or activities interfering with the safe and lawful operation of any mine or colliery shall also be subject to like complaint and disciplinary action by the Secretary of Mines. All the provisions of sections 2 to 6 inclusive, hereof applicable to proceedings involving a certificated official, shall also be applicable to proceedings involving an uncertificated official: Provided, That in the case of an uncertificated official, the Secretary of Mines, upon finding that the charges have been sustained, shall make an order disqualifying said official from holding office for a period of not more than one year: And provided further, That such official shall have the right, after his period of disqualification, to be reinstated in good standing, upon satisfying the Secretary of Mines that he is then qualified to perform his duties.

8. Employment of one whose certificate suspended or revoked or who has been disqualified

No operator may lawfully employ or continue in employment in such capacity, a mine foreman,

assistant mine foreman or fire boss whose certificate has been suspended or revoked during the effective period of such suspension or revocation, or who has been disqualified during the effective period of such disqualification.

SAFETY ZONES

1. Establishment of safety zones

A safety zone is hereby established beneath and adjacent to every stream, river and natural or artificial body of water in the Commonwealth that is sufficiently large to constitute a hazard to mining in the opinion and in the discretion of the department. Such safety zone shall in the case of such streams and rivers, extend horizontally two hundred feet from the high water mark of each bank. In the case of any other body of water sufficiently large to constitute a hazard to mining in the opinion and in the discretion of the department, it shall extend horizontally two hundred feet from the known perimeter. In any case, the zone shall extend downward to the limit of the workable beds.

2. Written authorization needed to mine within safety zone

(a) No mining or removal of minerals whatsoever shall be permitted within the safety zone unless authorization is specifically granted in advance and in writing by the Department of Environmental Protection.

(b) Such authorization shall only be granted upon application of the operator and/or the lessor. Such application shall be accompanied by four copies of a plan of the proposed mining operation. The plan shall indicate the thickness of the unconsolidated strata, the thickness of the rock strata and coal beds overlying the bed to be mined, the thickness of the bed, the widths of the openings to be made and the width of the pillars to be left, and any other special features that may be deemed necessary as affecting the contemplated first mining.

(c) The Department of Environmental Protection shall make periodic examinations to determine the accuracy of all plans, maps and drawings submitted to them under the provisions of this act.

3. Requirements for plan approval

In no instance will any plan be approved if there is less than thirty-five feet of rock cover. Factors

considered in plan approval shall include thickness of bed, width of mine openings, width of pillars and such other factors as are deemed applicable by the Department of Environmental Protection.

4. Pillar recovery

No pillar recovery shall be undertaken until such time as the plans are approved by the Department of Environmental Protection. Application for pillar recovery shall be accompanied by four copies of the plan which shall include such information as shall be determined by the department. The approval or disapproval shall be based on the factors of depth, the thickness of the bed, the percentage of pillars proposed to be extracted and to be left, the effect on pillars remaining in overlying beds, and any other special features that may be deemed necessary by the department.

5. Proof of rock cover

(a) Proof of the existence of thirty-five feet of rock cover shall accompany any plans submitted.

(b) Said proof of rock cover is to be ascertained by test holes drilled on intersecting lines forming rectangles or squares where the cover thickness is less than fifty feet. These holes shall be drilled on spacing of not more than thirty-five feet centers.

6. Copies of plans and proof of rock cover to be signed

All copies of the aforementioned plans and proof of rock cover must indicate the location of the test holes and the depth of the rock cover, and they must be signed before submission to the Department of Environmental Protection by a Registered Mining Engineer representing the operator and a Registered Mining Engineer of the lessor and/or owner.

7. Approval or disapproval of plans

(a) After examination and approval of the plans by a Registered Mining Engineer for the Department of Environmental Protection and the secretary of the department, they shall sign all copies. The original shall be retained in the department, one copy shall be forwarded to the State mine inspector for the area in which the mining is to be carried on, one copy is to be forwarded to the Registered Mining Engineer representing the operator and/or the lessor or owner, and one copy is to be forwarded to the operator.

(b) If the plan is disapproved, the Registered Mining Engineer for the Department of Environmental Protection and the secretary of the department shall note their reasons and attach a copy to each set of plans. One copy of the plan shall then be returned to

the operator, one to the State mine inspector for the area, one to the Registered Mining Engineer for the operator and/or owner or lessor and one shall be retained by the department.

8. Notice to miners working within the safety zone

After approval of the plan by the Department of Environmental Protection, no mining or removal of minerals may begin within the safety zone until the mine foreman has conspicuously posted a notice on the outside of the mine and has orally notified each miner affected that he is working in the safety zone.

9. Penalties

Any agent of the mine operator or any of its officers or supervisory employees or any agent of the owner or any of the owner's officers or supervisory employees, if said owner engages in active supervision and control over the operator, or any mine inspector who by acts of commission or omission, willfully and knowingly violates any provisions of this act, and the act of commission or omission is the contributory cause of an incident which results in death or serious bodily harm of anyone lawfully in the mine, shall be guilty of a felony, and, upon conviction, be sentenced to pay a fine of not more than five thousand dollars (\$5,000)

and undergo imprisonment for a period not exceeding three years or both.

SEALING ABANDONED MINES

1. Short title

This act shall be known and may be cited as "The Coal Mine Sealing Act of 1947."

2. Definitions

The following words and phrases, unless the context clearly indicates otherwise, shall have the meanings ascribed to them in this section:

(1) The term "abandoned coal mine" shall mean any coal mine in which mining operations have ceased because of the complete exhaustion of coal, or the exhaustion of coal which it is practical to mine within the foreseeable future, or where exemption from taxation has been allowed because of the absence of mineable coal.

(2) The term "mine sealing" shall mean the closing of openings into a mine in such a manner as to minimize or stop the pollution of the waters of the Commonwealth by mine water and to prevent access to the mine by persons or animals.

(3) The term "operator" shall mean any lessee, person, political subdivision or the Commonwealth of Pennsylvania.

(4) The term "department" shall mean the "Department of Environmental Protection" as now organized and operating in the Commonwealth of Pennsylvania.

(5) The term "openings" shall mean all shafts, slopes, drifts and tunnels.

3. Duty to seal openings

(a) All operators engaged in the mining of coal in this Commonwealth shall, upon the abandonment of a mine, seal any and all openings leading from such mine to the surface through which water may flow into any of the streams of this Commonwealth and through which appreciable quantities of air may enter the mine. Such sealing shall be started within sixty (60) days of abandonment and shall be diligently carried on to completion. In all cases, sealing shall be completed within six (6) months following abandonment.

(b) The operator last engaged in the operation of mines, abandoned prior to the effective date of this act, not heretofore sealed, shall, within six (6) months

after the effective date of this act, seal any and all openings leading from such mine to the surface through which water may flow into any of the streams of this Commonwealth and through which appreciable quantities of air may enter the mine: Provided, That the mine is in the possession of the said operator.

(c) The location and nature of any such seals which may be erected shall be in accordance with the requirements of or with plans furnished by the department: Provided, That the sealing of such mine shall not interfere with any other mine or endanger life or property in any community.

4. Payment of cost when operator not in possession

In cases where the operator is not in possession of the abandoned coal mine upon the effective date of this act, the work of sealing the openings and the cost of such work shall be assumed by the Commonwealth and shall be paid out of any appropriation made to the department for this purpose.

5. Maintenance of seals

After a mine has been sealed to the satisfaction of the department the maintenance of such seals shall be the duty of the Commonwealth of Pennsylvania acting through the department.

6. Right of entry by department or its representatives

The department, or its representatives, is hereby authorized to enter upon any lands where openings to abandoned mines are located for the purpose of sealing such openings, for inspecting and maintaining such seals, and for putting into effect the provisions of this act. Such entry shall not be construed as an act of condemnation of property or of trespass thereon.

7. Removing or destroying seal; penetrating sealed mine

Any person who removes or destroys any seal erected for the purposes described in this act, or who penetrates by means of shaft, slope, drift, tunnel or otherwise any sealed mine without first having received the approval of the department shall be guilty of a misdemeanor, and shall upon conviction thereof, be sentenced to pay a fine not less than one hundred dollars (\$100), nor more than one thousand dollars (\$1,000), or in the case of individuals or the responsible officers and agents of corporations and associations to undergo imprisonment for a period of not more than one (1) year, or both.

8. Refusal or neglect to seal openings

On and after the passage of this act, any operator who refuses or neglects to properly seal mine openings in accordance with plans submitted by the Department of Environmental Protection shall be guilty of a misdemeanor, and shall upon conviction thereof, be sentenced to pay a fine of not less than one hundred dollars (\$100), nor more than one thousand (\$1,000), or in the case of individuals or the responsible officers and agents of corporations and associations to undergo imprisonment for a period of not more than one (1) year, or both.

ENTOMBED WORKMEN

1. Recovery of bodies of entombed workmen; decree as to death

Whenever any workman or workmen shall heretofore have been, or shall hereafter be enclosed, entombed or buried in any coal mine in this Commonwealth, it shall be the duty of the court, sitting in equity, in the county wherein such workman or workmen are enclosed, entombed or buried, upon the petition of the Department of Environmental Protection brought whenever any of the relatives of those enclosed, entombed or buried so request in writing, to make an order of court for the petitioner to take testimony, in

order that the court may ascertain whether such workman or workmen, or the body or bodies of such workman or workmen, can be recovered or taken out of said mine, and further empowering the court to make a finding and decree that the person enclosed, entombed or buried is legally dead, together with such findings of fact including the date of death as is necessary or proper. If, after full hearing, it shall appear to the court that such undertaking is feasible or practicable, said court may forthwith issue a peremptory mandamus to the owner or owners, lessee or lessees, operator or operators of such coal company, to forthwith proceed to work for and recover and take out the body or bodies of such workman or workmen, and said court shall have full authority to enforce such peremptory mandamus in the manner already provided for the enforcement of such process.