

No. 2008-55

AN ACT

SB 949

Providing for bituminous coal mines; and making a repeal.

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The General Assembly of the Commonwealth of Pennsylvania hereby enacts as follows:

CHAPTER 1
PRELIMINARY PROVISIONS

Section 101. Short title.

This act shall be known and may be cited as the Bituminous Coal Mine Safety Act.

Section 102. Application.

This act shall apply to all underground bituminous coal mines in this Commonwealth, including all of the following:

- (1) The construction, operation, maintenance and sealing of underground bituminous coal mines.
- (2) The operators of underground bituminous coal mines.
- (3) All individuals at underground bituminous coal mines.

Section 103. Findings and purpose.

(a) Findings.—The General Assembly finds that it is in the public interest to establish a comprehensive scheme to protect the lives, health and safety of those who work at mines in this Commonwealth. This comprehensive scheme shall address all of the following:

- (1) The first priority and concern of all in the bituminous coal mining industry must be the health and safety of those who work in and at mines and others in and about mines.
- (2) Deaths and injuries from unsafe and unhealthful conditions and practices at underground bituminous coal mines cause grief and suffering to miners and their families.
- (3) The efforts of mine operators, miners and the Commonwealth, through the Department of Environmental Protection, have over time significantly reduced the occurrence of deaths and injuries in the

underground bituminous coal mining industry. This reduction in deaths and injuries is due, in part, to the safety standards under the act of July 17, 1961 (P.L.659, No.339), known as the Pennsylvania Bituminous Coal Mine Act, and the grant of authority to the department to approve underground bituminous coal mining activity and equipment.

(4) The Pennsylvania Bituminous Coal Mine Act is becoming outdated and lacks an effective mechanism to modify existing standards and to adopt new standards.

(5) The Commonwealth must maintain a strong, independent mine safety program.

(6) The operators at underground bituminous coal mines, with the assistance of certified miners and mine officials have the primary responsibility to prevent the existence of unsafe and unhealthful conditions at underground bituminous coal mines.

(7) Underground bituminous coal mining is highly specialized, technical and complex and requires frequent review, refinement and improvement of standards to protect the health and safety of miners.

(8) The formulation of appropriate rules and practices to improve health and safety and to provide increased protection of miners can be accomplished more effectively by individuals who have experience and expertise in underground bituminous coal mining and underground bituminous coal mine health and safety.

(9) Mine safety is enhanced through a rigorous program for training and certifying individuals to work at mines in this Commonwealth.

(10) It is imperative that the department have the capability to coordinate and assist rescue operations in response to accidents at underground bituminous coal mines.

(11) It is in the public interest to encourage the underground bituminous coal mining industry to establish, maintain and support mine rescue teams and other emergency response capabilities.

(b) Purpose.—It is the purpose of this act to do all of the following:

(1) To use the full extent of the Commonwealth's powers to protect the lives, health and safety of miners and others in and about underground bituminous coal mines.

(2) To establish and promulgate improved mandatory health and safety standards to protect the health and safety of miners and others in and about underground coal mines in this Commonwealth.

(3) To establish a rulemaking process that enables the expeditious updating of the interim mandatory health and safety standards established under this act and to otherwise protect the health, safety and welfare of miners and others in and about mines.

(4) To require that operators at underground bituminous coal mines and every individual at every mine comply with these standards.

(5) To improve and expand research, development and training programs aimed at preventing underground bituminous coal mine accidents and occupationally caused diseases in the industry.

(6) To enable the Commonwealth to respond as necessary and appropriate to accidents and other emergencies at underground bituminous coal mines.

Section 104. Definitions.

The following words and phrases when used in this act shall have the meanings given to them in this section unless the context clearly indicates otherwise:

“Abandoned workings.” Excavations, either caved or sealed, that are deserted and in which further mining is not intended.

“Accident.” An unanticipated event, including any of the following:

(1) A death of an individual at a mine.

(2) An injury to an individual at a mine, which has a reasonable potential to cause death.

(3) An entrapment of an individual at a mine which has a reasonable potential to cause death or serious injury.

(4) An unplanned inundation of a mine by a liquid or gas.

(5) An unplanned ignition or explosion of gas or dust.

(6) An unplanned mine fire not extinguished within ten minutes of discovery.

(7) An unplanned ignition or explosion of a blasting agent or an explosive.

(8) An unplanned roof fall at or above the anchorage zone in active workings where roof bolts are in use.

(9) An unplanned roof or rib fall in active workings that impairs ventilation or impedes passage.

(10) A coal or rock outburst that causes withdrawal of miners or which disrupts regular mining activity for more than one hour.

(11) An unstable condition at an impoundment or refuse pile which does any of the following:

(i) Requires emergency action in order to prevent failure.

(ii) Causes individuals to evacuate an area.

(12) Failure of an impoundment or refuse pile.

(13) Damage to hoisting equipment in a shaft or slope which endangers an individual or which interferes with use of the equipment for more than 30 minutes.

(14) An event at a mine which causes death or bodily injury to an individual not at the mine at the time the event occurs.

“Active workings.” All areas in a mine that are not sealed and which must be ventilated and examined under this act.

“Advisory committee.” The Technical Advisory Committee on Diesel-Powered Equipment.

“Approval.” A written document, issued by the Department of Environmental Protection, which states that a technology, material, machinery, tool, process, plan, device, equipment, facility, method, supply, accessory or other item meets the requirements of this act or of regulations promulgated under this act.

“Board.” The Board of Coal Mine Safety.

“Certified individual.” An individual who is qualified under the provisions of this act and who holds a certificate from the Department of Environmental Protection to perform a particular duty in connection with the operation at a mine. The term includes all of the following:

- (1) Mine foreman.
- (2) Assistant mine foreman.
- (3) Mine examiner.
- (4) Mine electrician.
- (5) Machine runner.
- (6) Shot-firer.
- (7) Miner.

“Check survey.” The term shall have the same meaning as closed-loop survey.

“Closed-loop survey.” The method of establishing the accuracy of a mine survey by conducting a loop traverse to the point of beginning or to a known point of another closed-loop survey. The term does not include a double-angle, double-distance survey unless that method is used to complete a closed-loop survey.

“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.

“Department.” The Department of Environmental Protection of the Commonwealth.

“DPEP.” Diesel-powered equipment package.

“Face.” The solid coal at the inby end of a working place.

“Inactive workings.” All portions of a mine in which operations have been suspended for an indefinite period, but have not been abandoned.

“Interim mandatory safety standards.” The safety standards under Chapters 2 and 3.

“Lateral and face take-ups.” The individual measurements left and right of the entry center line used to depict the physical location of the coal ribs and pillars. The lateral take-ups define the intersections, pillars’ corners and the significant variations in all excavations. The face take-ups define the limits of mining in all face areas in advance of the last station spad. Face take-ups and lateral take-ups in the face area are not to exceed a distance greater than 300 feet from the last survey station spad.

“Lost-time injury.” When an individual is unable to report for work at the individual’s regularly scheduled job on the individual’s next regularly scheduled work shift due to a work-related injury.

“Mine.” The shafts, slopes or drifts of an underground bituminous coal mine, either under construction, in use or abandoned, connected with excavations penetrating or intended to penetrate coal stratum or strata, which excavations are or were ventilated by air currents and connected by a method of transportation over which coal may be or was delivered to one or more points outside the mine. The term shall not include any surface coal mine.

“Mine examiner.” An individual designated by the mine foreman or superintendent to examine a mine for gas and other dangers. The term shall include the title “fire boss.”

“Mine foreman.” An individual appointed by an operator or superintendent to be in charge of all of the following:

- (1) The inside workings of a mine.
- (2) An individual in a mine.
- (3) A visitor to the inside of a mine, except for Federal and State Government representatives, mine inspectors and other representatives.

“Mine official.” Any of the following:

- (1) Superintendent.
- (2) Mine foreman.
- (3) Assistant mine foreman.
- (4) Mine examiner.
- (5) Mine electrician.

“Miner.” An individual who is certified by the Department of Environmental Protection to work in an underground mine.

“MSHA.” The Mine Safety and Health Administration within the United States Department of Labor.

“NIOSH.” The National Institute for Occupational Safety and Health within the United States Department of Health and Human Services.

“Operator.” An owner, lessee or other person who operates, controls or supervises a coal mine.

“Permissible explosives.” Explosives approved for use in mines by the Mine Safety and Health Administration, the National Institute for Occupational Safety and Health or their predecessor agencies, notwithstanding the date of the approval.

“Permit boundary.” The limits of the mine as established by the coal mine activity permit issued under the act of April 27, 1966 (1st Sp. Sess., P.L.31, No.1), known as The Bituminous Mine Subsidence and Land Conservation Act.

“Person.” Any individual, partnership, association, corporation, firm, subsidiary of a corporation or other organization.

“Pointer spads.” Additional spads set in the roof to indicate the line of direction or bearing for future excavations. Pointer spads may or may not be referenced in the field notes. Pointer spads are not considered a permanent record because they only indicate direction.

“Representative of the miners.” A miner employed at the mine who is authorized by a vote of two or more miners working at the same mine to perform the duties specified in this act.

“Return air.” Air that has ventilated the last working place on any split of any working section or any worked-out area whether pillared or nonpillared. The term shall include all of the following:

(1) Air that mixes with air that has ventilated the last working place on any split of any working section or any worked-out area, whether pillared or nonpillared.

(2) Any air that has passed or ventilated seal areas.

“Secretary.” The Secretary of Environmental Protection of the Commonwealth or the designee of the secretary.

“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 or for other purposes related to mining.

“Slope and drift.” An incline or opening used for the same purpose as a shaft.

“Spad.” A flat spike, firmly anchored in a hole drilled into the mine ceiling from which is threaded a plumbline.

“Superintendent.” An individual appointed by an operator to manage a mine.

“Survey line.” A representation of the line of survey from survey station spad to survey station spad as shown on the official mine map.

“Survey station spad.” A permanent spad set in the roof that has a unique identification number or designation.

“Underground bituminous coal mine.” A mine and the surface facilities that are physically connected to a mine, including preparation plants and loadouts at a mine, in this Commonwealth and not included in anthracite boundaries.

“Ventilation apparatus.” All equipment, materials and devices used to establish, provide or support movement of air through a mine.

“Work area.” Any place at a mine where work is being performed. The term shall not include areas where individuals are making examinations required under this act.

“Working place.” The area in a mine from the last open crosscut to and including the face.

“Working section.” The area in a mine from the face extending back 1,000 feet.

“Year of experience.” For the purposes of issuing certifications under this act, the term shall mean working 240 eight-hour days or the hourly equivalent within a 12-month period beginning with the first day of employment in a mine.

Section 105. Powers and duties of department.

The department shall have the power and duty to administer a mine safety program for individuals employed at mines. The department has the power and duty to do all of the following:

(1) Make inspections of public or private property as are necessary or useful in determining compliance with the provisions of this act, the rules and regulations promulgated under this act and any order, approval or permit issued by the department. The inspections may include examining or copying any documents required by this act.

(2) Conduct investigations and interviews of individuals at a mine or elsewhere.

(3) Issue orders to implement and enforce the provisions of this act.

(4) Institute proceedings and actions to implement the provisions and effectuate the purposes of this act, including suits seeking equitable relief or declaratory judgments and suits to recover costs incurred by the department.

(5) Institute prosecutions against the operator or his agent for a violation of any provision of this act.

(6) Determine whether an individual is qualified to carry out a particular function or duty at a mine and to issue appropriate certification.

(7) Disqualify an individual whose conduct poses a threat to the health and safety of those who work at mines or who interfere with the safe operation of any mine.

(8) Review and take appropriate action concerning safety of miners and individuals in and about mines on all permit applications submitted to the department.

(9) Receive and act upon complaints.

(10) Conduct, review and, if funds are allocated for such purposes, commission scientific and other research directed to the purposes of this act.

(11) Approve electrical equipment, machinery, materials, methods and plans to be used at mines in this Commonwealth.

(12) Approve, on a mine-specific basis, the use of new technology, methods, materials, machinery, equipment, systems, tools, devices, processes and plans different from those required or authorized under the provisions of this act or the regulations promulgated under this act. The department may only make approvals under this paragraph if the approval meets or exceeds the protections afforded under this act or the regulations promulgated under this act. Approvals under this paragraph shall have no precedent effect. All approvals in effect as of the effective date of this paragraph shall remain in effect unless suspended, modified or revoked by the department.

(13) Respond to, coordinate and assist responses to mine accidents and other emergencies.

(14) Establish a mine map repository.

(15) Serve as the agency of the Commonwealth for the receipt of funds from the Federal Government or other public agencies and expend the funds for studies and research with respect to and for the enforcement and administration of the purposes and provisions of this act and the regulations promulgated under this act.

(16) Assess civil penalties.

(17) Encourage and promote industry-based mine rescue capabilities.

(18) Provide training for department personnel and individuals who work in or who wish to work in the mining industry.

(19) Administer, deposit and expend funds from the Mine Safety Fund.

(20) Prepare and distribute to operators a mine operator's questionnaire form.

(21) Perform any act not inconsistent with any provision of this act, which it may deem necessary or proper for the effective administration or enforcement of this act and the rules or regulations promulgated under this act.

Section 106. Board of Coal Mine Safety.

(a) Establishment.—The Board of Coal Mine Safety is established and shall develop all of the following:

(1) Proposed amendments to the interim mandatory safety standards.

(2) Additional regulations with respect to mine safety if the board determines that existing Federal and State regulations do not adequately address a specific hazard.

(3) Other regulations as specifically authorized under this act.

(b) Composition.—The board shall consist of the secretary, who shall be the chairperson, and the following members appointed by the Governor:

(1) Three members who represent the viewpoint of the coal mine operators in this Commonwealth.

(2) Three members who represent the viewpoint of the working miners in this Commonwealth.

(c) Terms.—All appointments shall be subject to the following:

(1) The initial appointments after the effective date of this section shall have staggered terms so that, for each group of appointments under subsection (b), one member shall serve a term of one year, one member shall serve a term of two years and one member shall serve a term of three years. All subsequent appointments shall be for terms of three years.

(2) Members shall be eligible for reappointment.

(d) Representation.—For the initial appointments after the effective date of this section, the following shall apply:

(1) The members appointed under subsection (b)(1) shall be selected from a list containing six nominees submitted by the major trade association representing coal mine operators in this Commonwealth.

(2) The members appointed under subsection (b)(2) shall be selected from a list containing six nominees submitted by the highest-ranking

official within the major labor organization representing coal miners in this Commonwealth.

(e) Vacancies.—The following shall apply to vacancies on the board:

(1) The members appointed under subsection (b)(1) shall be selected from a list containing three nominees submitted by the major trade association representing coal mine operators in this Commonwealth.

(2) The members appointed under subsection (b)(2) shall be selected from a list containing three nominees submitted by the highest-ranking official within the major labor organization representing coal miners in this Commonwealth.

(f) Employment.—Members of the board may continue in employment in the coal industry while serving on the board.

(g) Service.—Members shall serve at the pleasure of the Governor.

(h) Compensation.—Members of the board shall be compensated at the appropriate per diem rate based on the prevailing formula administered by the Commonwealth, but not less than \$150 per day, plus reasonable expenses incurred while performing their official duties. The compensation shall be adjusted annually by the department to account for inflation based on the Consumer Price Index published by the United States Department of Labor. An individual board member may waive his or her right to all or part of the compensation.

(i) Meetings.—The board shall meet within 180 days of the effective date of this section for, at a minimum, organizational purposes. Members of the board shall meet at least twice during each calendar year or more often as may be necessary.

(j) Access.—In performing its functions, the board shall have access to the services of the department. The department shall make clerical support and assistance available to enable the board to carry out its duties.

(k) Funding.—Funding for the operation of the board and implementation of the provisions of this chapter shall be derived from the general government appropriation of the department.

(l) Nominations.—If a vacancy on the board occurs, nominations and appointments shall be made in the following manner:

(1) In the case of an appointment to fill a vacancy, a list of nominees under subsection (e) shall be requested by and submitted to the Governor within 30 days after the vacancy occurs by the major trade association or major labor organization which nominated the individual whose seat on the board is vacant.

(2) The vacancy shall be filled by the Governor within 30 days of the receipt of the list of nominees.

(m) Quorum.—A quorum of the board shall consist of five members. Actions of the board must be approved by an affirmative vote of at least five members.

Section 106.1. Rulemaking.

(a) Authority.—The board shall have the authority to promulgate regulations that are necessary or appropriate to implement the requirements of this act and to protect the health, safety and welfare of miners and other individuals in and about mines.

(b) Consideration.—The board shall consider promulgating as regulations any Federal mine safety standards that are either:

(1) Existing as of the effective date of this section and that are not included in interim mandatory safety standards.

(2) New standards, except for standards concerning diesel equipment, promulgated after the effective date of this section.

(c) Regulations.—Within 250 days of the effective date of this section, the board shall begin to consider the standards under subsection (b)(1) for promulgation as regulations. If final regulations are not promulgated by the board within three years of the effective date of this section, the department may promulgate final regulations consistent with Federal standards.

(d) New standards.—Within 70 days of the effective date of new mine safety standards under subsection (b)(2), the board shall begin to consider standards for promulgation as regulations. If the regulations are not promulgated as final by the board within three years of the effective date of the promulgation of the new standards, the department may promulgate final regulations consistent with Federal standards.

(e) Justification for regulations.—Regulations shall be based upon consideration of the latest scientific data in the field, the technical feasibility of standards, experience gained under this and other safety statutes, information submitted to the board in writing by any interested person or the recommendation of any member of the board, if the board determines that a regulation should be developed in order to serve the objectives of this act.

(f) Topic.—Without limiting the scope of the board's authority under this section, regulations may address any of the following:

(1) Revisions to an interim mandatory safety standard to address a new technology or method of mining.

(2) Hazards not addressed by existing safety standards.

(3) The identification of positions not listed under this act requiring a certificate of qualification.

(4) The establishment of fees for services in amounts sufficient to cover the department's costs of administering this act. The fees established by the board may be increased each year after implementation by the percentage, if any, by which the Consumer Price Index for the most recent calendar year exceeds the Consumer Price Index for the calendar year 1989. For the purposes of this paragraph, the Consumer Price Index for any calendar year shall mean the average of the Consumer Price Index for All Urban Consumers, published by the United States Department of Labor, as of the close of the 12-month period ending on August 31 of each calendar year.

(g) Safety.—No regulation promulgated by the board shall reduce or compromise the level of safety or protection afforded mine workers under this act. The department may disapprove a final regulation approved by the board which the department determines would reduce or compromise the level of safety or protection afforded mine workers under this act if the department describes the basis for the disapproval.

(h) Miner Act.—With regard to the adoption of Federal standards established pursuant to the Mine Improvement and New Emergency Response Act of 2006 (Public Law 109-236, 120 Stat. 493), the following shall apply:

(1) The board is specifically authorized to promulgate regulations that the board deems appropriate, including accelerated compliance schedules and additional requirements.

(2) The board shall consider promulgating regulations regarding flammability standards for conveyor belts.

(3) If MSHA fails to promulgate regulations regarding emergency shelters and chambers, the board shall promulgate regulations.

(4) Regulations shall be no less stringent than the Federal mine safety standards.

(i) Action.—The board shall take action on the tests and evaluations performed by the mining industry under section 334(b) and (c).

(j) Fees.—The department may set reasonable interim fees pending adoption of fee regulations under this section.

Section 106.2. Emergency shelters and chambers.

The board's emergency shelter or chamber regulations shall consider all of the following:

(1) Provide a minimum of 48 hours of life support, including air, water, emergency medical supplies and food, for the maximum number of miners reasonably expected to be on the working section.

(2) Be capable of surviving an initial event with a peak over pressure of 15 pounds per square inch for three seconds and a flash fire, as defined by National Fire Protection Association standard NFPA-2113, of 300 degrees Fahrenheit for three seconds.

(3) Be constructed in a manner that the emergency shelter or chamber will be protected under normal handling and pre-event mine conditions.

(4) Provide for rapidly establishing and maintaining an internal shelter atmosphere of oxygen above 19.5%, carbon dioxide below 0.5%.

(5) Provide for carbon monoxide below 50 parts per million and an apparent-temperature of 95 degrees Fahrenheit.

(6) Provide the ability to monitor carbon monoxide and oxygen inside and outside the shelter or chamber.

(7) Provide a means for entry and exit that maintains the integrity of the internal atmosphere.

(8) Provide a means for MSHA-certified intrinsically safe power if power is required.

- (9) Provide a minimum of eight quarts of water per miner.
- (10) Provide a minimum of 4,000 calories of food per miner.
- (11) Provide a means for disposal of human waste to the outside of the shelter or chamber.
- (12) Provide a first aid kit.
- (13) Have provisions for inspection of the shelter or chamber and its contents.
- (14) Contain manufacturer-recommended repair materials.
- (15) Provide a battery-powered, occupant-activated strobe light, of a model approved by the board, that is visible from the outside indicating occupancy.
- (16) Provide provisions for communication to the surface.
- (17) Provide proof of current approval for all items and materials subject to approval.

Section 106.3. Notice to operators and miners.

The department shall send a copy, in writing or electronically, of every proposed regulation and final regulation, at the time of publication in the Pennsylvania Bulletin, to the operator of each mine and, where applicable, the representative of the miners at the mine, and the copy shall be immediately posted on the bulletin board of the mine by the operator or the operator's agent. Failure to receive the notice shall not invalidate the final regulation or relieve anyone of the obligation to comply with final regulation.

Section 106.4. Standards for surface facilities.

The department shall use the applicable standards contained in 30 CFR Part 77 (relating to mandatory safety standards, surface coal mines and surface work areas of underground coal mines) regarding the sinking of shafts and slopes and surface facilities that are part of mines, pending promulgation of regulations by the board regarding those activities and facilities.

Section 106.5. Track distance.

(a) Determination by board.—Within 14 days of the initial meeting of the board, the board shall make a determination whether to promulgate regulations providing for exceptions to section 258(a.2). If the board decides to promulgate regulations providing for any of the exceptions described in subsection (b), any exceptions as approved by the board for proposed rulemaking shall become and remain in effect until the completion of the rulemaking process. Any exceptions approved by the board shall require the operator to make readily available a self-propelled transport vehicle with rubber tires in the working section for transportation of sick or injured miners.

(b) Exceptions.—The following exceptions to section 258(a.2) shall be considered by the board pursuant to subsection (a):

- (1) Bleeder entry development.
- (2) Development of longwall setup entries.
- (3) Development of longwall recovery entries.

(4) Startup of a working section off mains or submains entries.

Section 107. Safety issues.

The department shall consider the safety of miners in reviewing and acting on applications for permits issued to and for mines and shall include conditions addressing safety in issuing the permits. If the department determines that any aspect of the contemplated activity at an existing or proposed mine might constitute a threat to the health and safety of miners or individuals in and about mines, the department shall require the applicant or operator to eliminate the threat. If the applicant or operator does not eliminate the threat to the department's satisfaction, the department shall deny the application or applications or shall unilaterally modify the terms of the permit or suspend or revoke the permit.

Section 108. Inspections.

(a) Frequency and purpose.—The department shall make frequent inspections of mines. Each mine shall be inspected at least semiannually for electrical purposes and at least quarterly for general purposes. Inspections shall be conducted more frequently when the department determines that more frequent inspections are necessary or desirable. Inspections shall be conducted for the purposes of:

(1) Obtaining, utilizing and disseminating information relating to health and safety conditions, the causes of accidents and the causes of diseases and physical impairments originating in mines.

(2) Gathering information with respect to health or safety standards established or regulations promulgated under this act.

(3) Determining whether a danger exists.

(4) Determining whether the mine is in compliance with the provisions of this act, the mine safety regulations and any order, permit or decision issued by the department under this act.

(b) Accompaniment.—A representative of the operator and a representative of the miners shall be given the opportunity to accompany the department during the physical inspection of any coal mine or coal facility, including preparation plants, shops, coal handling facilities and all other areas associated with the coal mining operation, made pursuant to this act. The purpose of this accompaniment is to aid the inspection and to participate in all preinspection and postinspection closeouts and conferences and other activities required of the department under this act. The representative of the miners shall suffer no loss of pay during the period of participation in the inspection. Where there is no authorized representative of the miners, the department shall meet with no fewer than two miners concerning health and safety at the mine. To the extent the department determines more than one representative from each party would further aid the inspection, the department may permit each party to have an equal number of additional representatives. However, only one such representative of the miners who is an employee of the operator shall be entitled to suffer no loss of pay during the period of such participation under the provisions of this subsection. For

purposes of this subsection, the designation of the representative of miners shall be made in accordance with 30 CFR Pt. 40 (relating to representative of miners), except that the representative of the miners shall be an employee of the mine being inspected.

Section 109. Accidents.

(a) Duties of operator.—In the event of an accident occurring at a mine, an operator shall do all of the following:

(1) Notify the department no later than 15 minutes of discovery of the accident.

(2) Take appropriate measures to prevent the destruction of evidence which would assist in investigating the cause of the accident. Unless granted permission by the department, no operator may alter an accident site or an accident-related area until completion of all investigations pertaining to the accident, except to rescue any individual and prevent destruction of mine equipment.

(3) Obtain the approval of the department for any plan to recover an individual in the mine, to recover the coal mine or to return the affected areas of the mine to normal operations.

(4) Conduct its own investigation of the accident and develop a written report of the investigation. The report shall include all of the following:

(i) The date and hour of the accident.

(ii) The date the investigation began.

(iii) The names of the individuals participating in the investigation.

(iv) A description of the accident site.

(v) An explanation of the accident or injury, including a description of any equipment involved and relevant events before and after the accident.

(vi) An explanation of the cause of the accident.

(vii) An explanation of the cause of any injury sustained due to the accident.

(viii) The name, occupation and experience of any miner involved in the accident.

(ix) A sketch depicting the accident, including dimensions where pertinent.

(x) A description of steps taken to prevent a similar accident in the future.

(b) Duties of department.—In the event of an accident occurring at a mine, the department shall do all of the following:

(1) Take whatever action it deems appropriate, including the issuance of orders, to protect the life, health or safety of an individual, including coordinating and assisting rescue and recovery activities in the mine.

(2) Promptly decide whether to conduct an investigation of the accident and inform the operator and the representative of the miners of its decision.

(c) Report.—Each operator shall report to the department each accident and lost-time injury.

(1) The operator shall report within ten working days of the accident or lost-time injury. An operator may meet the requirements of this paragraph by submitting a copy of the MSHA Mine Accident, Injury and Illness Report Form 7000-1 required by 30 CFR 50.20 (relating to preparation and submission of MSHA Report Form 7000-1—Mine Accident, Injury, and Illness Report) in use on the date of the accident.

(2) Each accident and lost-time injury shall be reported on a separate form. If more than one miner is injured in the same accident, the operator shall submit a separate form for each miner affected.

Section 110. Mine officials' certification.

(a) Administration.—After evaluating the examinations, the department shall issue certificates to those candidates who have met the established criteria for each certification category.

(b) Committee.—

(1) The department shall appoint a committee to annually review and update the department's database of examination questions and answers. The committee shall be made up of an equal number of persons representing the viewpoints of the department, operators and miners.

(2) Members of the committee shall be compensated in the same manner as members of the board under section 106(h). An individual committee member may waive the right to all or part of the compensation under this paragraph.

(3) Members of the committee shall, after the committee has been duly organized, take and subscribe the following oath before an officer authorized to administer oaths:

We, the undersigned, do solemnly swear that we will perform the duties of members of this committee, and we will not divulge or make known to an individual any question prepared for the mine officials or in any manner assist any applicant to pass the examination.

(c) Confidential records.—Records pertaining to certification examinations shall not constitute a public record under the act of June 21, 1957 (P.L.390, No.212), referred to as the Right-to-Know Law.

Section 111. Classification of mines as gassy.

Notwithstanding any other provision of law, the distinction between gassy and nongassy mines is eliminated, and all underground bituminous mines shall comply with the requirements for gassy mines.

Section 112. Reports.

(a) Questionnaire.—The operator of an underground mine shall submit to the department a completed or revised deep mine questionnaire in the following instances:

(1) Prior to the commencement of any work for the purpose of opening a new underground mine or reopening an underground mine that has closed.

(2) Upon change of the information reflected on the most recently submitted operator's questionnaire.

(a.1) Notice.—Upon discontinuance of the operation of an underground mine, the operator shall immediately notify the department.

(b) Quarterly reports.—

(1) Each operator of an active mine shall submit quarterly reports within 15 days after the end of each quarter. The report shall contain information reflecting the activities of the previous quarter and shall include all of the following:

(i) The name and address of the mine.

(ii) Identification of the mine superintendent and mine foreman.

(iii) The employment, employee hours and coal production statistics for the mine.

(iv) A detailed description of the reportable injuries or accidents that occurred at the mine.

(2) An operator may meet the requirements of paragraph (1) by submitting a copy of the MSHA Quarterly Employment and Coal Production Report in use on the date of the quarterly report.

(c) Corrections.—By February 15 of each year, an operator must submit any corrections to the quarterly reports submitted during the prior year and must certify the accuracy of the corrected quarterly reports.

(d) Additional duties.—In addition to any records required under this act, a mine operator shall establish and maintain records, make reports and provide information as the department may require from time to time. The department is authorized to compile, analyze and publish, either in summary or detail form, the reports or information obtained. All records, information, reports, findings, notices, orders or decisions required or issued pursuant to or under this act may be published from time to time, may be released to any interested person and shall constitute a public record under the act of June 21, 1957 (P.L.390, No.212), referred to as the Right-to-Know Law.

(e) Copies.—An operator of a mine shall maintain a copy of the reports required by this section at the mine office closest to the mine for a period of not less than five years after submission of the reports.

Section 113. Mine rescue program.

(a) Establishment.—The department is authorized to establish and administer a mine rescue program for mines not able to provide a mine rescue crew for themselves. The department shall establish a program to do the following:

(1) Instruct mine employees how to care for individuals injured in and about the mines.

(2) Train mine employees who may voluntarily seek training in the use of self-contained breathing apparatus, gas masks, first aid to the injured and other things or practices essential to the safe and efficient conduct of the work of first aid and mine rescue.

(b) Equipment.—The department shall purchase and maintain adequate quantities of emergency response vehicles, specialized equipment, supplies and services necessary to assure rapid and effective response to mine emergencies, including mine fires, mine explosions, mine inundations, entrapments and mine recovery operations.

(c) Contracts.—In the event of an emergency response, the department may use the emergency contracting provisions of 62 Pa.C.S. § 516 (relating to emergency procurement) to lease additional services or equipment as is needed to respond to a mine emergency. The department, with the consent of the Governor, may use funds available to the Commonwealth for the purpose of responding to a mine emergency.

Section 114. Direction of mine rescue work.

The department shall coordinate and assist in all responses to a mine emergency conducted in this Commonwealth. The extent of coordination and assistance shall depend on the nature of the mine emergency and the operator's ability to respond to the mine emergency. This authority shall include directing responses to mine emergencies and assigning mine rescue crews and mine rescue and recovery work to mine inspectors or other qualified employees of the department.

Section 115. Recovery of funds.

The department is authorized to seek from an operator reimbursement of funds expended by the department to rent equipment and obtain services in responding to a mine emergency.

Section 116. Mine Safety Fund.

There is created a special fund known as the Mine Safety Fund. All moneys received by the department under this act and all moneys recovered from operators for expenses incurred in responding to a mine emergency shall be deposited by the State Treasurer into the Mine Safety Fund. All moneys deposited in the fund are hereby appropriated, upon approval of the Governor, to the department for mine safety activities and the administration of this act.

Section 117. Bituminous mine inspector.

Notwithstanding the act of August 5, 1941 (P.L.752, No.286), known as the Civil Service Act, in order to become eligible for employment as a bituminous mine inspector, an individual must, at a minimum, meet the following qualifications:

- (1) Be a resident of this Commonwealth.
- (2) Be an individual of good moral character and known temperate habits.
- (3) Be physically capable of entering and inspecting a coal mine.
- (4) Have at least a high school diploma.
- (5) Be at least 30 years of age.
- (6) Have had at least ten years' experience in an underground bituminous coal mine.

(7) Hold a current, valid certificate as a bituminous mine foreman, assistant mine foreman or mine examiner.

(8) Pass, with at least a score of 90%, the mine inspector's examination as conducted by the State Civil Service Commission in accordance with the Civil Service Act.

Section 118. Bituminous mine electrical inspector.

Notwithstanding the act of August 5, 1941 (P.L.752, No.286), known as the Civil Service Act, in order to become eligible for employment as a bituminous mine electrical inspector, an individual must meet at least the following qualifications:

- (1) Be a resident of this Commonwealth.
- (2) Be an individual of good moral character and known temperate habits.
- (3) Be physically capable of entering and inspecting a coal mine.
- (4) Have at least a high school diploma.
- (5) Be at least 30 years of age.
- (6) Have had at least ten years' experience in an underground bituminous coal mine.
- (7) Hold a current, valid certificate as a bituminous mine electrician.
- (8) Pass, with at least a score of 90%, the mine electrical inspector's examination as conducted by the State Civil Service Commission in accordance with the Civil Service Act.

Section 119. Availability of mine maps.

(a) Authorization.—The department is authorized and directed to obtain and copy all maps of mining conducted in this Commonwealth.

(b) Inspection and copying.—An individual who has possession of a mine map shall make the map available to the department for inspection and copying. The map shall be returned to its owner within 30 days.

(c) Liability.—No individual shall, solely on the basis of supplying a mine map to the department, be attributed or divested of liability.

Section 120. Mine map repository.

The department shall develop and maintain a repository of all mine maps it has obtained or has had an opportunity to copy. The department shall organize and catalog the mine maps in the repository to enable the department, other government agencies, mine operators and the general public to review the mine maps and to determine the location of mine workings. All mine maps and copies of mine maps held by the department shall be open for public inspection and made available for review upon request during the department's normal business hours.

Section 121. Applicability.

The provisions of Chapters 2 and 3 shall not apply to the construction of shafts and slopes.

CHAPTER 2

GENERAL REQUIREMENTS FOR UNDERGROUND BITUMINOUS MINES

Section 201. General safety requirements.

The following are general safety requirements:

- (1) All work must be performed in a safe manner.
- (2) All equipment must be maintained in safe operating condition.
- (3) No individual shall be employed as a mine foreman, assistant mine foreman, mine examiner, mine electrician, mining machine operator, shot-firer or miner unless that individual holds a current, valid certification from the department to work in that capacity. An individual who holds a current, valid certification to be a mine foreman may also work as an assistant mine foreman or mine examiner. Only a mine official shall direct the work force in matters involving the safety of employees. An individual who holds a current, valid certification as an assistant mine foreman may also work as a mine examiner.
- (4) It shall be the duty of the operator and all mine officials to comply with and see that others comply with the provisions of this act, the regulations promulgated pursuant to this act, all orders and approvals and the safety conditions in permits issued to the mine. It shall also be the duty of the operator and all mine officials to cooperate with the department in implementing the provisions of this act and effectuating the purposes of this act.
- (5) The operator and all mine officials shall comply with and follow all mining plans, approvals and orders issued by the department, rules and regulations of the operator, all provisions of law that are in harmony with this act and all other applicable laws. The operator is responsible for assuring that all activities in and around the mine, including those conducted by contractors, are conducted in compliance with this act, regulations promulgated under this act, approvals and orders issued by the department and any safety conditions included in permits.
- (6) During coal production, an assistant mine foreman shall be assigned to only one working section. The assistant mine foreman shall supervise individuals engaged in the coal-cutting operation. The assistant mine foreman may perform additional duties provided that he spends a majority of his time supervising individuals engaged in the coal-cutting operation.
- (7) Every superintendent, mine foreman, assistant mine foreman, mine electrician and mine examiner shall represent the Commonwealth in the mine in which he is employed and shall be deemed an officer of the Commonwealth in enforcing the provisions of this act and performing the mine official's duties under this act. The superintendent, mine foreman, assistant mine foreman, mine electrician or mine examiner shall perform these duties during such times as the mine is in operation and at such other times as the department deems to be necessary or appropriate to make the mine safe and to protect the health and safety of those who work in and around the mine.

Section 202. Qualifications for certification.

(a) General requirements.—

(1) Except as set forth under paragraph (2), in order to be eligible to sit for a certification examination, the following shall apply:

(i) An applicant must demonstrate the following levels of work experience in an underground bituminous coal mine:

(A) Mine foreman or mine electrician, five years.

(B) Assistant mine foreman, four years.

(C) Mine examiner, three years.

(ii) For each certification category in subparagraph (i), a minimum of two years' experience must have been in a working section.

(2) If an applicant holds a bachelor's degree in mining engineering or an associate degree in mining technology from a recognized institution of higher education in the case of a mine foreman, assistant mine foreman or mine examiner or a bachelor's degree in electrical engineering or an associate degree in electrical technology from a recognized institution of higher education in the case of a mine electrician, in order to be eligible to sit for a certification examination, the following shall apply:

(i) An applicant must demonstrate the following levels of work experience in an underground bituminous coal mine:

(A) Mine foreman or mine electrician, four years.

(B) Assistant mine foreman, three years.

(C) Mine examiner, two years.

(ii) For each certification category in subparagraph (i), a minimum of one year's experience must have been in a working section.

(b) Additional requirements.—The following additional requirements shall apply:

(1) All applicants shall be able to read and write the English language intelligently and shall furnish the department with a notarized statement from previous employers setting forth the length of service and type of work performed in the different mines.

(2) Certificates of qualification as mine foremen shall be granted to individuals who have given to the department satisfactory evidence of their ability to perform the duties of mine foreman and who have received training by individuals 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 have received an average of at least 80% in the examination.

(3) Certificates of qualification as assistant mine foremen shall be granted to individuals who have given to the department satisfactory evidence of their ability to perform the duties of assistant mine foreman and who have received training by individuals 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 have received an average of at least 70% in the examination.

(4) Certificates of qualification as mine examiners shall be granted to individuals who have given to the department satisfactory evidence of their ability to perform the duties of mine examiners and who have received training by individuals 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 have received an average of at least 75% in the mine examiners examination.

(5) Certificates of qualification as mine electrician shall be granted to individuals who have given to the department satisfactory evidence of their ability to perform the duties of mine electrician and received training by individuals 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 have received an average of 75% in the mine electrician's examination.

(6) Certificates of qualification or service granted prior to the effective date of this act shall have equal value with certificates of qualification granted under this act.

(7) All applicants who have satisfactorily passed examinations, 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 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. Any applicant who has been granted a mine official certificate prior to the effective date of this act need not undergo this training. The record of such training shall be maintained at the mine.

Section 203. Emergency use of mine examiner as assistant mine foreman.

The mine foreman may appoint a mine examiner who is willing to act as assistant mine foreman for not more than one month if all of the following apply:

(1) There is an emergency. As used in this paragraph, the term "emergency" means a condition which could not have been foreseen and requires immediate action.

(2) There is no assistant mine foreman available in the mine who is willing to act as an assistant mine foreman.

(3) A mine foreman may act as an assistant mine foreman, a mine examiner or a miner. An assistant mine foreman may act as a mine examiner or a miner. A mine examiner may act as a miner.

(4) Foreman trainees, where used, shall not direct the work force in matters involving directly or indirectly the safety of employees nor make tests or examinations required to be made by mine officials.

Section 204. Certification of miners.

No individual shall be employed or engaged as a miner in any bituminous coal mine in this Commonwealth without first having obtained a certificate of competency and qualification, except that any miner holding such certificate

may have a maximum of two individuals working 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. The miner shall provide adequate oversight to keep the uncertified individual out of harm's way.

Section 205. Qualifications for certification as miners.

The following shall apply:

(1) Miners shall be examined and granted certificates under regulations of the department.

(2) No individual shall be qualified to take the examination unless the individual produces evidence of having had not less than one year's experience in bituminous coal mines.

(3) All individuals possessing certificates of qualification issued by the Commonwealth 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.

Section 206. Issuance of miners' certificates.

The form and manner of issuing miners' certificates shall be designated by the department. Certificates granted shall entitle the certificate holder to be employed as and do the work of a miner in the bituminous coal mines of this Commonwealth. A certificate granted shall not be transferable, and a transfer shall be deemed a violation of this act.

Section 207. Certification of mining machine operators and shot-firers.

(a) General rule.—It shall be unlawful to employ as a mining machine operator or shot-firer in any bituminous coal mine any individual who has not given evidence to the department as to his fitness and competency to handle and use an approved gas detection device and his ability to determine the presence or absence of explosive gas and other dangerous conditions. The manner of determining fitness and competency shall be prescribed by the department. The department shall issue a certificate to those found competent, on a form prescribed by the department. The cost of the examination and certification shall be borne by the candidates.

(b) Eligibility.—An individual possessing a certificate of qualification issued by the Commonwealth entitling the individual to act as a mine foreman, assistant mine foreman, mine examiner or mine electrician is eligible to engage as a mining machine operator in a bituminous coal mine.

Section 208. Employment of mine foremen.

In order to secure efficient management and proper ventilation of mines, to promote the health and safety of individuals employed in mines and to protect and preserve the property connected with mines, the operator or superintendent shall employ a competent and practical mine foreman for every mine who shall be under the supervision and control of the operator or superintendent. The operator or superintendent of a mine shall be held as fully responsible as the individual appointed to act as mine foreman. The

mine foreman shall have full charge of all the inside workings and the individuals employed in the mine, subject, however, to the supervision and control of the operator or 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 are carried out in the strictest manner possible.

Section 209. Employment of mine electricians.

Each mine shall employ a certified mine electrician, who shall have full charge of the electrical apparatus at the mine but shall be subject to the authority of the mine foreman. 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 the mine electrician shall be subject to the same penalties as the mine foreman for any violation of these laws.

Section 210. Employment of assistant mine foremen.

When mine workings become so extensive that the mine foreman is unable personally to carry out the requirements of this act pertaining to duties, the mine foreman shall have the right to employ a sufficient number of competent individuals to act as his assistants who shall be under his instruction and the operator's or the superintendent's instruction in carrying out the provisions of this act. In each mine the mine foreman's assistants must possess assistant mine foreman certificates. In case of the necessary temporary absence of the mine foreman, the mine foreman may deputize his responsibilities, for the time being, to an assistant mine foreman who shall perform all the duties of the mine foreman. Any mine foreman, assistant mine foreman, mine examiner or mine electrician may supervise and direct the work of a maximum of two noncertified miners and shall instruct the individuals how safely and properly to perform their work.

Section 211. Ventilation responsibilities of mine foreman.

The following shall apply:

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

(2) A mine foreman shall ensure that proper cut-throughs are made in the pillars of all rooms and entries, and that they are closed when necessary or when required by the department, so that the ventilating current can be conducted in sufficient quantity through the last cut-through to the face of each room and entry. A mine foreman 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.

(3) A mine foreman or an assistant mine foreman 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. A record shall be made of daily measurements in the assistant mine foreman's daily report book. The measurements shall be taken on days when individuals are at work, and, for making the measurements, an anemometer shall be provided and kept in good condition by the superintendent of the mine.

(4) The following pertain to fan stoppage:

(i) If a main mine fan stops and the ventilating quantity provided by the fan is not maintained by a backup fan system, the following actions shall be taken:

(A) The power in by the loading point shall be immediately disconnected, and all men shall be withdrawn from the face areas of the mine to a point out by the loading point on the main travelway with established communications.

(B) As soon as it is known that the ventilation has been interrupted, all permissible battery-powered equipment shall be removed from the immediate face area and moved to a safe location out by the last open crosscut. All other battery-powered mobile equipment, except transportation equipment necessary for evacuation if located in a safe area, shall not be used after a ventilation interruption occurs. If possible, battery terminal leads shall be disconnected. If leads are not disconnected, all switches shall be turned off.

(C) If the interruption is less than 15 minutes, the working places, adjacent places and all other active working areas where methane may accumulate will be examined by a certified mine foreman, assistant mine foreman or mine examiner to determine if methane in the amount of 1.0 volume percent or more exists before power is restored and the men are permitted to resume mining operations.

(ii) If the ventilation is not restored within 15 minutes, the following precautions shall be taken:

(A) The power to all underground areas shall be disconnected.

(B) All individuals shall be withdrawn from the mine on foot under proper supervision.

(C) If ventilation is restored before the evacuation is completed, the certified mine foreman, assistant mine foreman or mine examiner may start the reexamination of the mine, but all other individuals must continue to evacuate.

(D) In order to provide for worker safety, power for communications may be left on.

(iii) As an alternative to evacuating the men on foot, a mine operator may propose to utilize mechanical equipment during the evacuation. To justify this proposal, the operator must perform a survey that shows explosive gas will not migrate to or accumulate in the designated haulageways that will be used to evacuate the mine. The

duration of the survey shall be at least twice the travel time from the farthest face to the surface. The operator shall provide the representative of the miners, if applicable, an opportunity to participate in the survey. The department will approve the survey criteria. Trolley equipment will not be used during a fan stoppage. If the survey provides affirmative results, which shall be provided to the department, the department shall approve a plan that provides:

(A) That permissible transportation equipment shall be used, if available.

(B) That evacuations shall begin within 15 minutes after a ventilation interruption and shall proceed in an orderly and expedient manner.

(C) That the minimum number of vehicles will be used for the evacuation.

(D) That, during transportation, a certified individual qualified to perform methane examinations riding in each vehicle shall continuously monitor for methane using a handheld detector and at specific locations designated by the operator based on the survey results. The speed of the vehicles shall not be so fast as to negate the detector's ability to accurately measure methane levels.

(E) That, if at any time during the evacuation methane is detected in an amount of .25% or more, the transportation vehicles will be deenergized and the evacuation completed on foot.

(F) That the operator, the department and the representative of the miners, if applicable, shall review the plan annually or more frequently if conditions warrant.

(iv) If ventilation is restored to normal water gauge before the evacuation is completed, a certified mine foreman, assistant mine foreman or mine examiner may start the reexamination of the mine, but all other individuals must continue to evacuate.

(v) The reexamination shall be made of the mine in the same manner as a preshift examination for a coal-producing shift before any power underground is energized, including battery-powered or diesel-powered equipment, or before individuals are permitted to enter the mine. The examination shall be made on foot, except an operator may use permissible transportation equipment on intake travelways only for reexamination after a fan stoppage if the examination is started within the time period established by the survey. The examination shall be recorded in the official mine record books used for examinations under section 218.

(5) 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 department of the condition.

(6) The mine foreman shall see that every mine releasing explosive gas is kept free of standing methane, but any accumulation of explosive 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 individual endangered by the presence of explosive or noxious gases shall be allowed in that portion of the mine until the 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 individual can enter and that danger signs are posted upon said fencing to warn individuals of the existing danger.

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

Section 212. Mine foreman's responsibility for working place safety.

The following shall apply:

(1) The mine foreman or assistant mine foreman shall direct and see that every working place is properly secured and shall see that no individual is directed or permitted to work in an unsafe place, unless it be for the purpose of making it safe. The mine foreman shall 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.

(2) 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 that roof support materials are 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.

(3) The mine foreman or assistant mine foreman 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 immediately carefully secured against falling on the workmen. Any workman who neglects to carry out or disobeys the instructions of the mine foreman or assistant mine foreman, 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 individual, the mine foreman shall report the name of that workman to the department for prosecution under the requirements of this act.

(4) The mine foreman shall give prompt attention to the removal of all dangers reported to him by his assistants, the mine examiner or any other individual working in the mine, and, in case it is impracticable to immediately remove the danger, he shall notify every individual whose safety is threatened to remain away from the area of the mine where the dangerous conditions exist.

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

(6) It shall be the duty of the mine foreman to see that approved gas detection devices are used when and where required by this act. No approved gas detection device shall be entrusted to any individual for use in a mine until the individual has given satisfactory evidence to the mine foreman that he understands the proper use of the device and the danger of tampering with the device. The transportation of tools into and out of the mine shall be under the direction of the mine foreman or an assistant mine foreman.

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

Section 213. Mine foreman's responsibilities for blasting.

The following shall apply:

(1) The mine foreman shall direct that the coal is properly mined before it is blasted, shot or broken. For purposes of this paragraph, the term "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.

(2) The mine foreman or 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.

(3) The mine foreman shall employ a sufficient number of competent and legally certified individuals to act as shot-firers.

Section 214. Mine foreman's responsibilities for drainage.

The following shall apply:

(1) The mine foreman shall see that the work areas are kept as free from water as practicable during working hours. Except for individuals necessary to correct the condition, individuals shall not enter an area with such accumulations.

(2) Whenever any working place in a mine approaches within 50 feet of abandoned workings, as shown by surveys certified by a registered engineer or surveyor, or within 500 feet of any other abandoned workings of the mine, which cannot be inspected and which may contain dangerous accumulations of water or gas, or within 500 feet of any workings of an adjacent mine, a test drilling plan which provides for the safety of all individuals must be submitted by the operator to the department for approval. The department may increase the setback distances under this paragraph.

(3) No mining may occur within the setback distances under paragraph (2) unless the department approves the test drilling plan and gives permission to proceed.

(4) 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 gas detection equipment. It shall be unlawful to work or employ individuals 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 approval is given in writing by the department.

(5) The department shall not accept from an operator a six-month mine subsidence map as required by the act of April 27, 1966 (1st Sp.Sess. P.L.31, No.1), known as The Bituminous Mine Subsidence and Land Conservation Act, unless the map includes the information required by paragraphs (2), (3) and (4).

Section 215. Mine foreman's responsibility for employment of competent individuals.

A noncertified individual may not be employed to operate equipment in a mine until the individual has completed a training program approved by the department and has given the mine foreman satisfactory proof that the individual can do the assigned work without endangering anyone.

Section 216. Mine foreman's responsibilities for inspections and reports.

The following shall apply:

(1) In all mines, the mine foreman shall employ a sufficient number of assistants to ensure a visit to each employee during each shift, except mine officials and miners whose normal duties require travel throughout the mine, either by the mine foreman or his assistants.

(2) The mine foreman shall, each day, enter plainly and sign in ink a report of the condition of the mine in a book provided for that purpose. The report shall clearly state any danger that may have come under his observation during the day or any danger reported by the assistant mine foreman or the mine examiners. The report shall also state whether or not a proper supply of material is on hand for the safe working of the mine and whether or not the requirements of law are complied with. The mine foreman shall also, once each week, enter plainly in ink in the 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 employed in each separate split of air, with the date when measurements were taken. The book shall at all times be kept in the mine office for examination by the department or any individual working in the mine in the presence of the superintendent or the mine foreman. The mine foreman shall also, each day, read carefully and countersign in ink all reports entered in the record book of the mine examiners.

(3) 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, and shall make a note of any unusual occurrence observed during the shift. The mine foreman shall read carefully the daily report of each assistant mine foreman and shall sign the report in ink daily. Where more than one portal is being used for the entrance of miners into a mine, the mine foreman may designate an assistant who holds a mine foreman certificate to sign the assistant mine foreman's and mine examiner's daily report books at each portal other than the main portal.

(4) It shall be the duty of the mine foreman, assistant mine foreman or an authorized individual 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 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. The report shall be countersigned by the mine foreman.

Section 217. Employment of mine examiners.

The mine foreman shall employ a sufficient number of mine examiners to ensure that each mine can be examined in accordance with the provisions of this act. The mine foreman or the assistant mine foreman shall ensure that the mine examiner has initialed, including date and time, the places examined or reported as examined.

Section 218. Preshift examination at fixed intervals.**(a) Examinations and intervals.—**

(1) Except as provided in paragraph (2), a certified person designated by the operator must make a preshift examination within three hours preceding the beginning of any eight-hour interval during which any person is scheduled to work or travel underground. No person other than certified examiners may enter or remain in any underground area unless a preshift examination has been completed for the established eight-hour interval. The operator must establish eight-hour intervals of time subject to the required preshift examinations.

(2) Preshift examinations of areas where pumpers are scheduled to work or travel shall not be required prior to the pumper entering the areas if the pumper is a certified person and the pumper conducts an examination for hazardous conditions, tests for methane and oxygen deficiency and determines if the air is moving in its proper direction in the area where the pumper works or travels. The examination of the area must be completed before the pumper performs any other work. A record of all hazardous conditions found by the pumper shall be made and retained in a record book.

(b) Duties of person conducting preshift examination.—The person conducting the preshift examination shall examine for hazardous conditions, test for methane and oxygen deficiency and determine if the air is moving in its proper direction and volume at the following locations:

(1) Roadways, travelways and track haulageways where persons are scheduled, prior to the beginning of the preshift examination, to work or travel during the oncoming shift.

(2) Belt conveyors that will be energized during the oncoming shift.

(3) Working sections and areas where mechanized mining equipment is being installed or removed if anyone is scheduled to work on the section or in the area during the oncoming shift. The scope of the examination shall include the working places, approaches to worked-out areas and ventilation controls on these sections and in these areas, and the examination shall include tests of the roof, face and rib conditions on these sections and in these areas.

(4) Approaches to worked-out areas along intake air courses and at the entries used to carry air into worked-out areas if the intake air passing the approaches is used to ventilate working sections where anyone is scheduled to work during the oncoming shift. The examination of the approaches to the worked-out areas shall be made in the intake air course

immediately inby and outby each entry used to carry air into the worked-out area. An examination of the entries used to carry air into the worked-out areas shall be conducted at a point immediately inby the intersection of each entry with the intake air course.

(5) Areas where trolley wires or trolley feeder wires are to be or will remain energized during the oncoming shift.

(6) High spots along intake air courses where methane is likely to accumulate, if equipment will be operated in the area during the shift.

(7) Underground transformer stations, battery charging stations, substations, rectifiers, electrically operated submersible pumps, permissible pumps and associated permissible switch gear, compressor stations that will be energized during the oncoming shift, electrical pumps located on or near the section or that move as the section advances and retreats and small electrical portable pumps.

(8) Other areas where work or travel during the oncoming shift is scheduled prior to the beginning of the preshift examination.

(c) Air volume determination.—The person conducting the preshift examination shall determine the volume of air entering each of the following areas if anyone is scheduled to work in the areas during the oncoming shift:

(1) In the last open crosscut of each set of entries or rooms on each working section and areas where mechanized mining equipment is being installed or removed. The last open crosscut is the crosscut in the line of pillars containing the permanent stoppings that separate the intake air courses and the return air courses.

(2) On each longwall or shortwall in the intake entry or entries at the intake end of the longwall or shortwall face immediately outby the face and the velocity of air at each end of the face at the locations specified in the approved ventilation plan.

(3) At the intake end of any pillar line:

(i) if a single split of air is used, in the intake entry furthest from the return air course, immediately outby the first open crosscut outby the line of pillars being mined; or

(ii) if a split system is used, in the intake entries of each split immediately inby the split point.

(d) Certification.—At each working place examined, the person doing the preshift examination shall certify, by initials, date and the time, that the examination was made. In areas required to be examined outby a working section, the certified person shall certify, by initials, date and the time, at enough locations to show that the entire area has been examined.

(e) Sign posting.—If the 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, the mine examiner 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, 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.

(f) Recordkeeping.—A record of the results of each preshift examination, including a record of hazardous conditions and their locations found by the examiner during each examination and of the results and locations of air and methane measurements, shall be made on the surface before any persons, other than certified persons conducting examinations required by this subpart, enter any underground area of the mine. The results of methane tests shall be recorded as the percentage of methane measured by the examiner. The record shall be made by the certified person who made the examination. If the examiner has called out the examination from underground and will not complete surface record books personally, the examiner shall enter a record of examination in a record book kept in a fireproof vault underground and sign the same. When a station is located in a mine, it shall be the duty of a mine examiner to also sign a report entered in the record book in the mine office on the surface. A record shall also be made by a certified person of the action taken to correct hazardous conditions found during the preshift examination. All preshift and corrective action records shall be countersigned by the mine foreman or equivalent mine official by the end of the mine foreman's or equivalent mine official's next regularly scheduled working shift. The records required by this section shall be made in a secure book that is not susceptible to alteration or electronically in a computer system so as to be secure and not susceptible to alteration.

(g) Second examination.—A second examination by the same or other mine examiner shall be made during working hours of every working place where individuals 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.

(h) Retention period.—Records shall be retained at a surface location at the mine for at least one year and shall be made available for inspection by the mine inspector and the representative of miners, if applicable.

(i) Additional examination.—An additional examination of the working section for persons entering the mine more than three hours after the start of an eight-hour cycle and entering such working section shall be done if persons have not been present in such working section during the three-hour period after the start of the eight-hour period, provided that the entry after the start of the eight-hour cycle is not occasioned by training of the miners or a fan check. A certified person shall examine the working section for hazardous conditions, determine whether the air is traveling in its proper direction and at its normal volume and test for methane and oxygen deficiency. Such examination does not include the travelways to such area where persons regularly travel in the mine.

(j) Certification in working section.—In each working section examined, the person doing the examination shall certify, by initials, date and the time, that the examination was made.

(k) Recordkeeping.—A record of the results of each examination, including a record of hazardous conditions and their locations found by the examiner during each examination and of the results and locations of air and methane measurements, shall be made on the surface before any persons, other than certified persons conducting examinations, enter the working section. The results of methane tests shall be recorded as the percentage of methane measured by the examiner. The record shall be made by the certified person who made the examination. If the examiner has called out his examination from underground and will not complete surface record books personally, the examiner shall enter a record of examination in a record book kept in a fireproof vault underground and sign the same. When a station is located in a mine, it shall be the duty of a mine examiner to also sign a report entered in the record book in the mine office on the surface. A record shall also be made by a certified person of the action taken to correct hazardous conditions found during the examination. All examinations and corrective action records shall be countersigned by the mine foreman or equivalent mine official by the end of the mine foreman's or equivalent mine official's next regularly scheduled working shift. The records required by this section shall be made in a secure book that is not susceptible to alteration or electronically in a computer system so as to be secure and not susceptible to alteration.

(l) Retention period.—Records shall be retained at a surface location at the mine for at least one year and shall be made available for inspection by the mine inspector and the representative of miners.

Section 218.1. Supplemental examination.

(a) Duties.—Except for certified persons conducting examinations required by this subsection, within three hours before anyone enters an area in which a preshift examination has not been made for that shift, a certified person shall examine the area for hazardous conditions, determine whether the air is traveling in its proper direction and at its normal volume and test for methane and oxygen deficiency.

(b) Certification.—At each working place examined, the person making the supplemental examination shall certify, by initials, date and the time, that the examination was made. In areas required to be examined outby a working section, the certified person shall certify, by initials, date and the time, at enough locations to show that the entire area has been examined.

(c) Recordkeeping.—A record of the results of each examination, including a record of hazardous conditions and their locations found by the examiner during each examination and of the results and locations of air and methane measurements, shall be made on the surface before any persons, other than certified persons conducting examinations, enter the working area. The results of methane tests shall be recorded as the percentage of methane measured by the examiner. The record shall be made by the certified person

who made the examination. If the examiner has called out his examination from underground and will not complete surface record books personally, the examiner shall enter a record of examination in a record book kept in a fireproof vault underground and sign the same. When a station is located in a mine, it shall be the duty of a mine examiner to also sign a report entered in the record book in the mine office on the surface. A record shall also be made by a certified person of the action taken to correct hazardous conditions found during the examination. All examinations and corrective action records shall be countersigned by the mine foreman or equivalent mine official by the end of the mine foreman's or equivalent mine official's next regularly scheduled working shift. The records required by this section shall be made in a secure book that is not susceptible to alteration or electronically in a computer system so as to be secure and not susceptible to alteration.

Section 219. Management of mine.

The right to hire and discharge employees, management of the mine and the direction of the working forces are vested exclusively in the operator. No individual, association, organization or corporation shall interfere with or attempt to interfere with, abridge or attempt to abridge, in any manner whatsoever, these rights, provided that these rights do not invalidate any existing or future contract.

Section 220. Duties of superintendent.

(a) **General rule.**—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, he shall immediately notify the mine foreman, whose duty it shall be to withdraw all individuals from the mine or portion of the mine, until the materials or supplies are received.

(b) **Examination.**—The superintendent shall, at least once every week, read, examine and countersign all reports entered in the mine record book. If the superintendent determines that the law is being violated, the superintendent shall order the mine foreman to stop the violation and ensure compliance with that order.

Section 221. Qualifications and general responsibility of superintendent.

The following shall apply:

(1) Beginning one year after the effective date of this paragraph, no individual may be appointed as a superintendent at any mine in this Commonwealth unless the individual holds a current, valid mine foreman certificate. In the event that a superintendent is found by the department to be in breach of his or her responsibilities as superintendent, the department may suspend or revoke the superintendent's mine foreman certificate.

(2) No individual may serve as the superintendent for more than one mine.

(3) The superintendent shall not obstruct the mine foreman or other official in the fulfillment of his duties as required by this act. The superintendent shall ensure that the mine foreman and all other employees of the mine comply with the law. The superintendent shall immediately respond to a violation of this act upon notification by the department. The superintendent shall be responsible for all the outside workings and all individuals employed at the mine. At a mine where a superintendent is not employed, the mine foreman shall have all the duties and responsibilities otherwise given to the superintendent in addition to the regular duties of the mine foreman.

Section 222. Danger signs.

The superintendent of every mine shall provide a sufficient number of danger signs 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 signs in all mines shall be uniform and of a design approved by the department. All danger signs shall be kept in good condition and no defective sign shall be used in any mine.

Section 223. Supply of record books.

The superintendent shall keep on hand at the mine a supply of the record books required by this act and shall ensure that record books are delivered to the proper individuals at the mine and that they are properly cared for.

Section 224. Mapping requirements and surveying standards.

(a) General rule.—The operator or superintendent of each mine shall cause to be made by a registered mining engineer or registered professional surveyor an accurate, professional quality map of the mine on a scale of not less than 200 feet to the inch. At a minimum, the map shall show:

(1) A complete legend identifying all features represented on the map and a title block including all changes of mine ownership and the dates of those changes.

(2) An accurate delineation of the current extent of the workings of the mine and all mines or coal lands, or both, inside the permit boundary and all mines or coal lands, or both, within 1,000 feet of the outside of the permit boundary. The delineation must show all workings of all mines above and below the mine within the permit boundary and within 1,000 feet of the outside of the permit boundary.

(3) Barrier pillars for all mine workings inside the permit boundary and all mine workings adjacent to the permit boundary.

(4) Two permanent baseline points coordinated with the underground and surface traverse points and two permanent elevation benchmarks referencing mine elevation surveys. The baseline points and elevation benchmarks shall be prepared using the Pennsylvania State Plane Coordinate System (NAD83 Datum). In the alternative, the map shall include coordinate transformation equations converting the baseline

points shown to correlate to the Pennsylvania State Plane Coordinate System.

(5) All openings, excavations, shafts, slopes, drifts, tunnels, entries, crosscuts, rooms, boreholes and all other excavations, including surface pits and auger holes in each seam.

(6) Areas where the pillars or longwall panels have been removed.

(7) The name or number of each butt, room and section, if available.

(8) Ventilation controls, air splits and the direction of air currents using arrows.

(9) USGS elevation at the top and bottom of each shaft, slope, drift and borehole.

(10) Bottom of coal elevations, taken at intervals not to exceed 300 feet apart, in one entry of each section and in one entry of each set of rooms off such sections.

(11) Bottom of coal elevations taken in the last open crosscut of all sections and each set of rooms off such section before they are abandoned.

(12) Elevation contour lines at whole number, ten-foot increments, unless the seam is steeply pitching, after which it may be 25-foot intervals.

(13) The number or designation of each survey station and the date of the last survey in the entries, as they are represented on the map.

(14) The location and elevation of any body of water dammed or held back in any portion of the mine, giving the volume in gallons of the body of water.

(15) The location of streams, rivers, lakes, dams or any other bodies of water on the surface, with their surface elevations accurately and plainly marked.

(16) The location of permanent surface features such as railroad tracks, public highways, permanent buildings and oil and gas wells.

(17) All seals and bulkheads within the mine.

(b) Accuracy standards.—The following accuracy standards must be met:

(1) A minimum elevation closure of plus or minus one foot per 5,000 feet is required.

(2) Mine traverse, advanced by closed-loop method of survey or other equally accurate method of traversing. Minimum angular and coordinate ties for raw data would be an angular tie of less than one minute and a coordinate time of greater than 1 to 10,000 for any given closed-loop survey.

(c) Surveying standards.—The extent of surveying shown on the map shall be acceptable where the following minimum underground surveying standards are met:

(1) Every entry must be surveyed at intervals not to exceed 300 lineal feet. Survey station spads shall be established in each entry of all mains, sections, butts, rooms and other excavations. Survey lines may extend

from adjacent entries as long as the interval between survey station spads within an entry does not exceed 300 lineal feet. Continuous survey lines must be maintained in at least one entry.

(2) Lateral take-ups, left and right, must be taken in every entry at all intersections and must denote the location of all intersections and define the corners and the location of the rib line within each entry. For any excavation greater than 20% from the planned excavation, additional lateral take-ups must be taken to define this area. All of the information must be accurately portrayed on the mine map.

(3) All workings not surveyed and taken from a working map or other unofficial record shall be shown on the map with dashed lines. The legend shall identify that these areas have not been surveyed.

(4) A survey station spad is required to be within 300 feet of the deepest penetration of the final faces of each mining section, butt or room. The number or designation of the last survey station spad and the date of such survey of the entries are to be shown on the mine map. The area from this spad to the face will be considered surveyed provided that lateral and face take-ups have been completed and recorded in the field book and shown on the mine map. Field books shall be available for inspection. If lateral and face take-ups are not completed, the area in by the last survey station spad must be identified on the map with dashed lines. The survey station spads located in each mining section, butt or room shall be tied to a check survey station.

(5) Check survey stations shall be advanced to within 300 feet of the deepest penetration of all mains, submains, sections and butts. Check survey stations shall be advanced to within 600 feet of the deepest penetration of all rooms.

(6) Check survey stations shall be advanced to within 100 feet of the deepest penetration of all mining sections, butts, rooms and excavations adjacent to the permit or property boundary lines.

(d) Verification.—Prior to each area's being sealed, the operator or superintendent shall verify in writing that the map of the sealed area meets the requirements of this act. To the extent that any areas in the mine cannot be surveyed, these areas shall be indicated on the map.

Section 225. Availability of copy of map.

A true copy of the map made pursuant to section 224 shall be kept in the mine office for the use of the mine officials and department and for the inspection, in the presence of the superintendent or mine foreman, of any individual working in the mine, or of authorized representatives of the employees of the mine, whenever the individual or representative fears 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 226. Excavations on map.

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

Section 227. Furnishing copies of maps.

A copy of the mine map shall be furnished every six months to the department. When more than one seam of coal is being worked in any mine, the department shall be provided with a separate copy of the original map of the complete workings of each seam as provided for under this act. The copies shall remain in the care of the department. 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, the 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 228. Duties upon abandonment of mine.

(a) General rule.—If a mine is inactive for a period of 60 days or more or if the operator intends to cease ventilation of the mine, the operator or the superintendent shall notify the department at once and shall, within 60 days, extend the official map to show clearly all worked-out or abandoned territory with all excavations, property and boundary lines, elevations and map features as required under this act or, if the workings are not accessible, provide a copy of the most recent map available that is clearly marked to state that the workings shown were not surveyed. The owner or operator of the mine shall also, within 45 days after its change in status, send to the department a tracing, print or digital map in a format acceptable to the department of the complete original map. The registered mining engineer or registered surveyor shall certify that the tracing, print or digital map is a true and correct copy of the original map of the mine and that the original map is a true, complete and correct map and survey of all the excavations made in the inactive or abandoned mine. A dated statement signed by a company or corporate officer stating that the map represents a complete and accurate representation of all underground excavations and is the final map of the mine, or stating that the map provided is not a surveyed final map due to inaccessibility of the workings, shall be included.

(b) Violation.—If the operator, superintendent or company or corporate officer fails to provide the certified final map or recklessly or intentionally submits an inaccurate certified map, the violation shall be a felony subject to prosecution under section 505. Costs incurred by the Commonwealth as a result of a violation of this subsection may be recovered as restitution.

Section 229. Survey by department.

If the department has reasonable cause to believe that a map of any mine furnished under the provisions of this act is inaccurate or imperfect, the department may require the operator to make a survey and a new map of the mine.

Section 230. Ventilation requirements.

(a) General rule.—The operator or superintendent of a 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 carry away flammable or harmful gases.

(b) Specification.—The quantity of air reaching the last open crosscut in any pair or set of entries shall not be less than 9,000 cubic feet per minute. All active underground work areas in a mine shall be ventilated by a current of air containing not less than 19.5% oxygen and not more than .5% carbon dioxide and no harmful quantities of other noxious or poisonous gases.

(c) Ventilating belt entries.—A belt conveyor entry shall be isolated from the adjacent entries.

(1) The following requirements apply:

(i) The quantity of air traveling in the belt conveyor shall be kept to the minimum quantity necessary for effective ventilation by means of permanent stoppings and regulators.

(ii) The belt conveyor entry shall be provided with a separate split of intake air.

(iii) The belt conveyor entry shall provide an intake escapeway to the main air current.

(2) If an operator proposes to use entries in common with the belt conveyor entry, the operator must submit a plan to and obtain approval by the department that addresses the following criteria:

(i) The belt conveyor is cleaned and maintained to minimize float dust in the common entries.

(ii) Stoppings and regulators are arranged to reduce the quantity of air traveling in the belt and common entries to a minimum for effective ventilation of the belt and common entries and to provide an intake air split as an escapeway to the main air current.

(iii) Fire protection is installed and maintained on all belt conveyors in compliance with appropriate standards.

(iv) There is an early warning fire detection system and carbon monoxide (CO) or smoke sensors that meet the requirements of 30 CFR 75.351 (relating to atmospheric monitoring systems). The spacing of the CO or smoke sensors shall not exceed 1,000 feet. The belt air velocity shall be a minimum of 50 fpm or CO or smoke sensor spacing shall be reduced to provide an adequate alarm time not to exceed 20 minutes. The CO or smoke sensors shall be set to alarm at the lowest practicable setting and be positioned in the ventilation current to provide the most effective detection.

(v) The number of common entries may not exceed three entries, including the belt entry.

(vi) Development for common entries is designed to be at a lower ventilation pressure than the main intake escapeway.

(vii) If a condition develops that causes the belt and common entries to be at a higher ventilation pressure than the main intake escapeway, efforts are undertaken to immediately correct the condition. If the condition cannot practicably be corrected, the mine operator must notify the department of the condition, the specific cause, the area affected and the steps that will be taken to maintain the pressure in the belt and common entries at the lowest attainable level.

(viii) When the belt ventilation current travels away from the working section, no ignition sources, except equipment necessary to maintain the escapeway and personnel carriers, shall be permitted in the intake escapeway unless CO or smoke sensors that meet Federal fire detection standards are installed in the intake escapeway. Equipment operated in the intake escapeway shall be equipped with an automatic fire suppression system or comply with 30 CFR 75.380(f)(4) (relating to escapeways; bituminous and lignite mines). CO detectors shall give an audible alarm over the mine communication system. The alarm shall indicate the conveyor belt flight where the alarm occurred. Both visual and audible alarm signals must automatically be provided at all affected working sections and affected areas where mechanized mining equipment is being installed or removed and on the surface at a monitored location. Two-way underground communications shall be maintained between the monitored surface location and all underground working sections and areas where mechanized mining equipment is being installed or removed.

(ix) A copy of the mine's federally approved firefighting and evacuation plan is included with the plan.

(d) Actions to detect and respond to excess methane.—The following actions are required to detect and respond to excess methane:

(1) Location of tests. Tests for methane concentrations under this section shall be made at least 12 inches from the roof, face, ribs and floor.

(2) Working places and intake air courses.

(i) When 1% or more methane is present in a working place or an intake air course, including an air course in which a belt conveyor is located or in an area where mechanized mining equipment is being installed or removed:

(A) Except intrinsically safe atmospheric monitoring systems (AMS), electrically powered equipment in the affected area shall be deenergized and other mechanized equipment shall be shut off.

(B) Changes or adjustments shall be made immediately to the ventilation system to reduce the concentration of methane to less than 1%.

(C) No other work shall be permitted in the affected area until the methane concentration is less than 1%.

(ii) When 1.5% or more methane is present in a working place or an intake air course, including an air course in which a belt conveyor is

located or in an area where mechanized mining equipment is being installed or removed:

(A) Except for Federal or State mine inspectors, the mine foreman or assistant mine foreman or individuals authorized by the mine foreman or assistant mine foreman, all individuals shall be withdrawn from the affected area.

(B) Except for intrinsically safe AMS, electrically powered equipment in the affected area shall be disconnected at the power source.

(3) Return air split.

(i) When 1% or more methane is present in a return air split between the last working place on a working section and where that split of air meets another split of air or the location at which the split is used to ventilate seals or worked-out areas, changes or adjustments shall be made immediately to the ventilation system to reduce the concentration of methane in the return air to less than 1%.

(ii) When 1.5% or more methane is present in a return air split between the last working place on a working section and where that split of air meets another split of air or the location where the split is used to ventilate seals or worked-out areas, except for Federal or State mine inspectors, the mine foreman, assistant mine foreman or individuals authorized by the mine foreman or assistant mine foreman, all individuals shall be withdrawn from the affected area.

(iii) Other than intrinsically safe AMS, equipment in the affected area shall be deenergized, electric power shall be disconnected at the power source and other mechanized equipment shall be shut off.

(iv) No other work shall be permitted in the affected area until the methane concentration in the return air is less than 1%.

(4) Return air split alternative.

(i) The provisions of this paragraph may apply if:

(A) The quantity of air in the split ventilating the active workings is at least 27,000 cubic feet per minute in the last open crosscut or the quantity specified in the approved ventilation plan, whichever is greater.

(B) The methane content of the air in the split is continuously monitored during mining operations by an AMS that gives a visual and audible signal on the working section when the methane in the return air reaches 1.5% and the methane content is monitored as specified in the approved ventilation plan.

(C) Rock dust is continuously applied with a mechanical duster to the return air course during coal production at a location in the air course immediately outby the most inby monitoring point.

(ii) When 1.5% or more methane is present in a return air split between a point in the return opposite the section loading point and

where that split of air meets another split of air or where the split of air is used to ventilate seals or worked-out areas:

(A) Changes or adjustments shall be made immediately to the ventilation system to reduce the concentration of methane in the return air less than 1.5%.

(B) Except for Federal or State mine inspectors, the mine foreman, assistant mine foreman or individuals authorized by the mine foreman or assistant mine foreman, all individuals shall be withdrawn from the affected area.

(C) Except for intrinsically safe AMS, equipment in the affected area shall be deenergized, electric power shall be disconnected at the power source and other mechanized equipment shall be shut off.

(D) No other work shall be permitted in the affected area until the methane concentration in the return air is less than 1.5%.

(e) Changes and adjustments in ventilation.—

(1) If either the concentration of methane in a bleeder split of air immediately before the air in the split joins another split of air, or in a return air course other than as described in subsection (d)(3) and (4), contains methane gas in an amount of 2% or greater, as detected by an approved gas detection device, changes or adjustments shall be made immediately in the ventilation in the mine so that returning air contains less than 2% of methane gas.

(2) When 2% of methane is exceeded beyond the mixing point with another split in the main return, the operator shall submit a written plan to abate the problem to the department for approval.

(f) Submittal of detailed ventilation plan to department.—

(1) A mine operator shall submit a detailed ventilation plan and any addendums to the department for review and comment. The mine operator shall review the plan with the department and address concerns to the extent practicable. The department shall submit any concern that is not addressed to MSHA through comments to the plan. The mine operator shall provide a copy of the plan to the department and the representative of the miners, if applicable, ten days prior to the submittal of the plan to MSHA.

(2) The operator shall give the department a copy of the MSHA-approved plan and any addendums as soon as the operator receives the approval.

(3) In the event of an unforeseen situation requiring immediate action on a plan revision, the operator shall submit the proposed revision to the department and the representative of the miners when the proposed revision is submitted to MSHA. The department shall work with the operator to review and comment on the proposed plan revision to MSHA as quickly as possible.

(4) Upon approval by MSHA, the plan is enforceable by the department.

Section 231. Crosscuts and stoppings.

(a) Maximum distance.—

(1) The distance driven to establish ventilation connections between entries or rooms shall not exceed 200 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 200 linear feet when the new air connection is established.

(2) In no case shall any place be driven a total of more than 200 linear feet unless ventilation connections have been established, except as provided under this act.

(3) Where adequate ventilation can be provided, the department may give written permission to authorize a greater distance.

(b) Closure of crosscuts.—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 department, to provide adequate ventilation at the working face.

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

(d) Excavations.—Excavations shall not exceed 18 feet in depth, unless permission is obtained from the department to drive a greater distance beyond the last open crosscut, if such excavations are kept free of accumulations of methane by use of line brattice or other adequate means.

(e) Construction materials of stoppings.—A permanent stopping shall be built of solid, substantial, incombustible material, including, but not limited to, concrete, concrete blocks, bricks, steel or tile, provided that, where physical conditions exist because of caving that makes the use of concrete, concrete blocks, brick, steel or tile impracticable, timber laid longitudinally skin-to-skin or an approved substitute may be used. A temporary stopping may be erected in cut-throughs near the working face. A stopping shall be reasonably airtight.

(f) Building and maintenance.—A permanent stopping or other permanent ventilation control device shall be built and maintained as follows:

(1) Between intake and return air courses, except temporary controls may be used in rooms that are 600 feet or less from the centerline of the entry from which the room was developed, including where continuous face haulage systems are used in the rooms. Unless otherwise approved in the ventilation plan, the stopping or control shall be maintained to and including the third connecting crosscut outby the working face.

(2) To separate belt conveyer haulageways from intake air courses when the air in the intake air courses is used to provide air to active working places, except temporary ventilation controls may be used in rooms that are 600 feet or less from the centerline of the entry from which the rooms were developed, including where continuous face haulage systems are used in the rooms. When continuous face haulage systems are

used, a permanent stopping or other device shall be built and maintained to the outby most point of travel of the dolly or 600 feet from the point of deepest penetration in the conveyor belt entry, whichever distance is closer to the point of deepest penetration, to separate the continuous haulage entry from the intake entries.

Section 232. Overcasts and undercasts.

(a) Arrangement of ventilation.—Ventilation shall be so arranged by means of air locks, overcasts or undercasts that the passage of trips or individuals 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 department. An air lock shall be ventilated sufficiently to prevent accumulations of methane in it.

(b) Doors.—

(1) A door controlling ventilation shall be kept closed, except when men or equipment are passing through the doorway. Motor crews and other individuals who open a door shall see that the door is closed before leaving it.

(2) It shall be unlawful for an individual to knowingly leave a door or a check-curtain open.

(c) Hanging of doors.—A door controlling ventilation shall be hung in such a manner as to be self-closing.

(d) Construction materials.—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. Overcasts and undercasts shall be of ample area to pass the required quantity of air and shall be kept clear of obstructions.

Section 233. Line brattice.

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

(b) Spacing.—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) Construction material.—Brattice cloth used underground shall be constructed of approved flame-resistant material.

Section 234. Auxiliary blowers and fans.

(a) Procedure.—

(1) The operator of a mine who desires to use in the mine an auxiliary blower or exhaust fan shall submit to the department a ventilation plan showing the proposed use of the auxiliary blower or exhaust fan.

(2) The department shall review the plan and take one of the following actions:

(i) Approve the plan.

(ii) Request additional information.

(iii) Disapprove the plan and set forth in writing its reasons for the disapproval.

(3) In approving a plan, the department shall require that an auxiliary blower or exhaust fan shall be:

(i) Powered by an approved motor when installed underground.

(ii) Operated continuously while any work is being performed in the area being ventilated by the blower or fan.

(iii) Be so placed that recirculation of the air is not possible.

(b) Time period for review.—The department shall approve or disapprove a plan within 60 days after being initially submitted by the operator.

Section 235. Unused and abandoned parts of mines.

An area that is not sealed shall be ventilated. Return air may be used to ventilate the area. The department shall approve a ventilation plan for an abandoned, unused or sealed part of a mine.

Section 236. Sewage dumping prohibited.

If any individual shall construct, or cause to be constructed for use after the effective date of this section, a sewer or other method of drainage from a building or dwelling house for the carrying of sewage, offal, refuse or other offensive matter into any portion of an operating or abandoned mine, the individual commits a misdemeanor of the third degree.

Section 237. Fans.

(a) General rule.—The ventilation of a mine that extends more than 200 feet underground and is opened after the effective date of this section shall be produced by a mechanically operated fan or fans. The fan or fans shall be kept in continuous operation unless written permission to do otherwise is granted by the department.

(b) Location.—Except as otherwise provided under subsection (c), a main fan shall be:

(1) Located on the surface in fireproof housing offset not less than 15 feet from the nearest side of the mine opening.

(2) Equipped with fireproof air ducts provided with explosion doors or a weakwall.

(3) Operated from a separate power circuit.

(c) Exception.—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 if:

(1) The opening is not in direct line with possible forces coming out of the mine if an explosion occurs.

(2) 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.

(d) Recordkeeping and inspections.—

(1) A record of the charts shall be kept for one year.

(2) A daily inspection shall be made of all main fans and connected machinery by a competent individual and a record kept of the inspection in a book prescribed for that purpose.

(e) Warning of fan interruption.—Approved facilities shall be provided at a point or points under observation while men are in the mine and shall give warning of an interruption to a fan. Where such facilities are not provided, an attendant shall be constantly kept on duty while individuals are working in the mine.

Section 238. Measurement of methane.

The mine foreman or 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 .1%. 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 department, and a correct report of these determinations shall be promptly furnished to the department. The determinations or samples shall be taken on days when individuals are working and recorded in a book provided for that purpose.

Section 239. Control of coal dust and rock dusting.

(a) Method of removal.—

(1) Dangerous accumulations of fine, dry coal dust shall be removed from a 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 1,000 feet out by the first active working place in each operating section shall be kept watered down, rock dusted or dust allayed by such other methods as may be approved by the department.

(2) A mine or location in a mine that is too wet or too high in incombustible content to initiate or propagate a coal dust ignition need not be rock dusted during the time any of those conditions prevail.

(3) Coal dust and other dust in suspension in unusual quantities shall be allayed by sprinkling or other dust allaying or collecting devices.

(b) Specifications.—

(1) In a dry and dusty mine or section 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 1,000 feet out by the junction with the first active working place.

(2) Rock dust shall be so applied to include the last open crosscut of rooms and entries and to within 40 feet of the faces. In mines where mining is done by continuous-type mining machinery, the distances from the face to which rock dust shall be applied shall be the mining distance for one shift if:

(i) The active working place shall be kept from damp to wet.

(ii) After coal production on any shifts has ceased, an application of rock dust shall be made in the exposed area to within 40 feet of the face before additional mining is performed in the area.

(3) Rock dust shall be maintained in such quantity that the incombustible content of the mine dust shall not be less than 65%.

(c) Composition of rock dust.—Rock dust shall not contain more than 5% by volume of quartz or free silica particles and shall be pulverized so that 100% will pass through a 20-mesh screen and 70% or more will pass through a 200-mesh screen.

Section 240. Instruction of employees and examination of working areas.

(a) General rule.—The mine foreman or assistant mine foreman shall 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. 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.

(b) Examination for date marks.—A miner shall examine his place to determine whether the mine examiner has left the date marks indicating his examination thereof. If date marks cannot be found, the miner shall notify the mine foreman or assistant mine foreman of that fact.

(c) Correction of unsafe roof, face or rib conditions.—

(1) 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.

(2) If roof, face or rib conditions are found to be unsafe and normal taking down or supporting practices cannot correct the unsafe condition, the place shall be vacated and guarded or a danger sign erected to prevent unauthorized entrance, and the certified mine official in charge promptly shall be notified. Only individuals capable of correcting the dangerous condition may be delegated to do such work.

(3) The certified mine official in charge shall examine for unsafe conditions and the roof, faces, ribs and timbers or supports of all working places each time they visit a place. Unsafe conditions found shall be corrected promptly. All employees shall notify the mine foreman or assistant mine foreman of an unsafe condition in the mine when the condition is known to them.

Section 241. Roof support.

(a) General rule.—The roof in an underground area shall be supported as necessary for the protection of the employees and equipment. A roof control plan suitable to the roof conditions of each mine or part of a mine shall be adopted and complied with by the operator. The department shall be notified of the adoption of the plan of roof support, shall review the plan and:

- (1) approve it;
- (2) request additional information; or

(3) disapprove the plan and state in writing its reason for the disapproval.

(b) Roof support plans to be posted.—Workmen whose work involves roof support shall be informed of approved roof support plans and the plans shall be posted. Additional roof supports shall be used when and where necessary.

(c) Periodic revision and update of roof control plan.—Every mine operator shall revise and update the roof control plan every six months or more frequently if required to do so by the department. A copy of the plan shall be provided to the representative of the miners ten days prior to submitting it to the department for review and comment.

Section 242. Authorized explosives.

Permissible explosives, approved breaking devices or approved blasting devices shall be used in underground mines.

Section 243. (Reserved).

Section 244. Underground storage of explosives.

(a) Placement.—Explosives and detonators stored underground shall be:

(1) Kept in section boxes or magazines of substantial construction with no metal exposed on the inside.

(2) Located at least 25 feet from roadways and power wires in a well-rock-dusted location protected from falls of roof.

(b) Separation.—If not kept in separate boxes or magazines not less than five feet apart, the explosives and detonators may be kept in the same box or magazine if separated by at least a four-inch hardwood partition or the equivalent. The boxes or magazines shall be kept at least 300 feet from the faces and out of the direct line of blasting and shall be installed outby the last permanent stopping and on intake air.

Section 245. Preparation of shots, blasting practices and multiple shooting.

(a) Requirements.—

(1) Only certified shot-firers shall be permitted to handle explosives and conduct blasting.

(2) Only electric detonators of proper strength fired with approved shot-firing units shall be used, and drillholes shall be solidly stemmed with at least 24 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.

(3) 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.

(4) Ample warning shall be given before shots are fired, and care shall be taken to determine that all individuals are in the clear before firing. Individuals shall be removed from adjoining areas and other areas when there is danger of shots blowing through.

(5) No shots shall be fired:

(i) In any area until the area has been properly examined by the shot-firer.

(ii) In any area where 1% of gas is detected by an approved gas detection device.

(6) After firing any shot, the shot-firer shall make a careful examination of the work area before leaving the area or before performing any other work in the area.

(b) Plan to be submitted to department.—An operator of a mine who desires to conduct multiple shooting shall submit to the department for approval a plan indicating the manner and details proposed to engage in multiple shooting.

(c) Prohibitions.—

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

(2) Mudcaps, adobes or any other unconfined shots shall not be permitted in any bituminous coal mine.

(3) No solid shooting shall be permitted without approval from the department. Where solid shooting is practiced, blasting holes shall be stemmed the full length of the hole.

(d) Blasting and shooting cables.—

(1) Blasting cables shall be well-insulated and shall be at least 125 feet in length to permit individuals authorized to fire shots to get in a safe place out of the line of blasting.

(2) Shooting cables shall be kept away from power wires and all other sources of electric current, connected to the leg wires by the individual 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.

(3) Detonator leg wires shall be kept shunted until ready to connect to the blasting cable.

Section 246. Transportation of explosives.

(a) Construction of containers.—

(1) Individual containers used to carry permissible explosives or detonators shall be constructed of substantial, nonconductive materials approved by the department, kept closed and maintained in good condition. When explosives or detonators are transported underground in cars moved by means of powered haulage equipment, they shall be in cars having a substantial covering or in special substantially built covered containers used specifically for transporting detonators or explosives.

(2) Explosives or detonators shall not be hauled into or out of the mine within five minutes preceding or following individuals being transported.

(b) Prohibitions.—

(1) 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.

(2) No shot-firer shall carry into or have delivered to him any larger quantity of explosives or detonators than the shot-firer may reasonably expect to use in any one shift.

(c) Separation of explosives and detonators.—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 the cars or containers shall be constructed or lined with nonconductive material.

Section 247. Electrical shot-firing.

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

Section 248. General shot-firing rules.

(a) Ignited gas.—When gas is ignited by a blast or a fire occurs, the shot-firer shall immediately extinguish it, if possible, and, if unable to do so, shall immediately notify the mine foreman of the fact and warn other individuals in the vicinity who might be endangered.

(b) Shot-firer to provide notice to others.—When a shot-firer is about to fire a blast, he shall notify all individuals who may be endangered and shall give sufficient alarm so that any individual approaching may be warned of the danger.

(c) Construction of charging and tamping tools.—All charging and tamping tools shall be constructed of nonsparking materials.

(d) Disconnection from electricity.—Immediately after the firing of a shot, the firing leads shall be disconnected from the supply or source of electricity and shunted.

(e) Preconditions to firing machine or battery.—No firing machine or battery shall be connected to the shot-firing leads unless:

(1) All other steps preparatory to the firing of a shot have been completed.

(2) All individuals have been moved to a place of safety.

(3) No individual other than the shot-firer has made the connection.

(f) Firing machine or battery in possession of shot-firer.—The shot-firer shall keep the firing machine or battery in his possession at all times while blasting.

(g) Testing of blasting devices.—Frequent tests shall be made of all blasting devices to see that their capacity has not been decreased by use or accident.

(h) Examinations for gas.—The shot-firer shall examine the place for gas and other dangers before and after firing each shot or blast.

Section 249. Hoisting equipment and operations.

(a) General duties of operator or superintendent.—

(1) The operator or superintendent of a bituminous coal mine worked by shaft shall provide and maintain:

(i) A telephone or other means of communication from the top to the bottom and intermediate landings of the shaft.

(ii) A standard means of signaling.

(iii) An effective safety catch, bridle chains, automatic stopping device and automatic overwind.

(iv) A sufficient cover on every cage used for lowering or hoisting individuals.

(v) An effective safety gate at the top of the cage shaft and intermediate landings controlled by the cage.

(vi) An adequate brake on the drum of every machine used to lower or hoist individuals in the shaft.

(2) The operator shall have the machinery used for lowering and hoisting individuals into or out of the mine kept in safe condition and equipped with a reliable indicator. Cages and elevators shall be inspected once in each 24 hours by a competent individual of the company or by a manufacturer's representative and a safety catch test made every two months, a record kept thereof and a copy sent to the department.

(3) (i) Where a hoisting engineer is required, he shall be readily available at all times when individuals 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 individuals.

(ii) Subparagraph (i) shall not apply to elevators used exclusively for hoisting and lowering individuals.

(4) 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 an individual to pass the shaft in going from one side to the other without passing over or under the cage or other hoisting apparatus.

(5) Positive stop blocks or derails shall be placed near the top and bottom, at all intermediate landings of slopes and surface inclines and at approaches to all shaft landings.

(6) A waiting station with sufficient room, ample clearance from moving equipment and adequate seating facilities shall be provided where individuals are required to wait for man-trips or cages. The individuals shall remain in the station until the man-trip or cage is available.

(7) No hoisting engineer shall be required for automatically operated cages or elevators.

(b) Duties of mine foreman.—

(1) When hoisting or lowering of individuals 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

individuals going to the bottom may clearly discern the cages, elevators and other objects contiguous thereto.

(2) The mine foreman shall see that:

(i) No cages or elevators on which individuals ride are lifted or lowered at a rate of speed greater than 900 feet per minute.

(ii) No mine cars, either empty or loaded, are hoisted or lowered on cages while individuals are being lowered or hoisted.

(iii) No cage having an unstable self-dump platform shall be used for carrying individuals unless the cage is provided with some device by which it may be securely locked when individuals are being hoisted or lowered into the mine.

(c) Ropes, links and chains.—

(1) In shafts where coal is hoisted and individuals 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.

(2) In shafts used exclusively for lowering or hoisting individuals and material, the factor of safety of ropes, links and chains shall not be less than ten to one of the maximum load.

(3) All ropes, links and chains shall be carefully examined at least once every 24 hours by a competent individual delegated for that purpose by the superintendent.

(4) Any defect found from the examination, 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. Until that is accomplished, the superintendent shall prohibit any individual from being lowered into or hoisted from the mine by the defective apparatus.

(5) The individual making the examination shall keep a daily record of each inspection, in ink, in a book kept at the mine office for that purpose.

(d) Cage requirements.—

(1) (i) The operator or superintendent shall provide every cage used for lowering or hoisting individuals with handrails at sides or overhead or additional suitable devices and with a bar or gate at ends.

(ii) Subparagraph (i) shall not apply to elevators used exclusively for lowering and hoisting individuals.

(2) The ropes shall be securely attached to the sides of the drum of every machine that is used for lowering and hoisting individuals 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) Signaling system.—

(1) In all shafts and slopes where individuals, coal and other materials are hoisted by machinery, a system of signaling approved by the department shall be in effect. The following code of signals shall be used:

- (i) One signal to hoist the car or cage.
- (ii) One signal to stop the car or cage when in motion.
- (iii) Two signals to lower the car or cage.
- (iv) Three signals to hoist individuals.

(2) The hoist operator shall signal back when ready, after which the individual shall get on the car or cage, and then one signal shall be given to hoist.

Section 250. Bottom person.

(a) Duties.—At every shaft or slope where individuals are lowered into or hoisted from the mine, a bottom person, who shall be over 21 years of age, shall be designated by the mine foreman. The bottom person shall:

(1) Be on duty when individuals are being hoisted or lowered at the beginning and end of each shift.

(2) Personally attend to the signals and see that the provisions of this act in respect to hoisting individuals in shafts or slopes are complied with.

(3) Not allow any tools to be placed on the same cage with individuals or on either cage when they are being hoisted out of the mine, except for the purpose of repairing the shaft or machinery in the shaft. Individuals shall place their tools in containers or cars provided for that purpose, which containers or cars shall be hoisted before or after the individuals have been hoisted.

(4) Immediately inform the mine foreman of any violation.

(5) Not attempt to withdraw the car until the cage comes to a rest.

(6) When putting the full car on the cage, 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 hoist operator.

(b) When bottom person not required.—No bottom person shall be required for automatically operated cages or elevators.

Section 251. Number of individuals to be hoisted.

(a) General rule.—No greater number of individuals shall be lowered or hoisted at any one time in any shaft or slope than is permitted by the department. Whenever the number of individuals returning from work shall arrive at the bottom of the shaft or slope in which individuals are regularly hoisted or lowered, they shall be promptly furnished with an empty cage, car or elevator and be hoisted to the surface. In cases of emergency, a lesser number than permitted shall be promptly hoisted.

(b) Posting of notice.—A notice of the number permitted to be lowered or hoisted at any one time shall be posted by the operator or superintendent in conspicuous places at the top and bottom of the shaft, and the cage or cages or other safe means of egress shall be available at all times for the individuals employed in any mine that has no second outlet available.

Section 252. Top person.

(a) Duties.—At every shaft or slope where individuals are lowered into or hoisted from a mine, a top person or trip rider, who shall be over 21 years of age, shall be designated by the superintendent. The top person shall:

(1) Be on duty when individuals are being hoisted or lowered at the beginning and end of each shift.

(2) Personally attend to the signals and see that the provisions of this act in respect to lowering and hoisting individuals in shafts or slopes are complied with. The trip rider may also perform this duty.

(3) 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 in the shaft. Individuals shall place their tools in containers or cars provided for that purpose, which containers or cars shall be lowered before or after the individuals have been lowered.

(4) If located on a slope or incline plane, 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 the safety block or other device be withdrawn until the cars are coupled to the rope or chain and the proper signal given.

(5) Carefully inspect each day all the machinery in and about the headframe and the rope used, promptly report to the superintendent any defect discovered and securely attach the cars to the rope before lowering them down the incline.

(6) Ring the alarm bell in case of an accident and, when necessary, immediately set free the drop logs or safety switch to act.

(7) If located in a shaft, see that the springs or keeps for the cage rest upon and are kept in good working order.

(8) When taking off the full car, see that no coal or other material falls down the shaft.

(b) When top person not required—No top person shall be required for automatically operated cages or elevators.

(c) Reporting of individuals crowding or pushing.—Any individual crowding or pushing to get on or off a cage, elevator or car, thereby endangering life, shall be reported by any individual to the superintendent, who in turn shall report the incident to the department for appropriate action.

Section 253. Use of competent hoist operators.

(a) Prohibitions.—

(1) No operator or superintendent of any bituminous coal mine worked by shaft, slope or incline shall place in charge of any hoist used for lowering or hoisting individuals in the mine hoisting operators who are under 21 years of age.

(2) No hoist operator in charge of such machinery shall allow any individual, except as may be designated for this purpose by the operator or superintendent, to interfere with any part of the machinery.

(3) No individual shall interfere with or intimidate the hoist operator in the discharge of the duties of the hoist operators.

(4) No individual shall ride on a loaded cage or car in any shaft, slope or incline. This paragraph shall not be construed to prevent a trip rider from riding during the performance of his authorized duties.

(b) Special precautions.—When individuals are being lowered or raised, the hoist operator shall take special precautions to keep the hoist well under control.

Section 254. Clearances and shelter holes.

(a) Specifications for clearances.—

(1) Track switches, except room and entry development switches, shall be provided with properly installed throws, bridle bars and guard rails.

(2) Switch throws and stands, where possible, shall be placed on the clearance side.

(3) Haulage roads shall have a continuous unobstructed clearance of at least 30 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. The clearance space on all haulage roads shall be kept free of loose rock, coal, supplies or other materials, provided that not more than 30 inches need be kept free of such obstructions.

(4) Ample clearance shall be provided at all points where supplies are loaded or unloaded along haulage roads or conveyors.

(b) Specifications for shelter holes.—

(1) (i) Shelter holes shall be provided on the clearance side along designated travelways, which are also used as haulage entries, other than belt conveyor haulage entries.

(ii) Subparagraph (i) shall not apply to face area or room haulageways.

(2) Shelter holes shall be spaced not more than 105 feet apart unless otherwise approved by the department. Shelter holes 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.

(3) 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.

(4) Shelter holes shall be kept clear of refuse and other obstructions.

(5) Shelter holes shall be provided at switch throws and at manually operated permanent doors.

Section 255. Underground haulage equipment.

(a) Maintenance.—Underground 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.

(b) Warnings to be sounded.—Operators of haulage equipment shall sound a warning on approaching curves, intersections, doors, curtains, manway crossings or any other location where individuals are likely to travel.

Section 256. Operation of haulage equipment.

(a) Duties of motormen and trip riders.—Motormen and trip riders shall:

- (1) Use care in handling locomotives and cars.
- (2) See that the entire trip is coupled before starting.
- (3) See that there is a conspicuous light or other device approved by the department, properly maintained, on the front and rear of each trip or train of cars when in motion.

(b) Prohibitions.—

- (1) No individual shall ride on locomotives unless granted permission by the mine foreman.
- (2) No individual shall ride on any loaded car or on the outside of any car.
- (3) No motorman or trip rider shall get on or off a locomotive while it is in motion.
- (4) No individual shall fly or run switches or ride on the front bumper of a car. 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.

(c) Duties of motormen.—Motormen shall:

- (1) See that properly maintained safety devices are placed on the last car of any trip being hauled upgrade, as designated by the mine foreman and approved by the department, on the front and rear of each trip or train of cars when in motion.
- (2) Inspect locomotives and report any mechanical defects found to the proper mine official prior to operation. The locomotive may not be operated until the defects are corrected.
- (3) If there is reason to leave a trip, see that the trip 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 individuals.

(d) System of signals, methods or devices.—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 shall move only at his direction.

Section 257. Trip rider and bottom individual on rope haulage.

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

(b) Duties of bottom individual.—The bottom individual 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 hoisting operator. The bottom individual shall not allow any individual to ride up the slope other than the trip rider.

Section 258. Transportation of individuals.

(a) **General rule.**—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 individual designated by the mine foreman or the assistant mine foreman and operated independently of any loaded trip of coal or other heavy material, but may transport tools, small machine parts and supplies.

(a.1) **Rail as exclusive means of transport.**—Where transportation of personnel is exclusively by rail, track shall be maintained to within 750 feet of the tailpiece on the longwall section or the nearest working face on development sections. The distance can be extended to a distance of up to 1,500 feet if a self-propelled transport vehicle with rubber tires is readily available in the working section for transportation of sick or injured miners.

(a.2) **Variance.**—The operator may request in writing from the department a variance to permit track distances in excess of 1,500 feet. A variance not disapproved within 30 days after receipt by the department is deemed approved. If a variance is granted, a self-propelled transport vehicle with rubber tires shall be readily available in the working section for transportation of sick or injured miners.

(b) **Prohibition.**—No individual shall:

(1) Ride under the trolley wire unless suitable covered mantrips are used.

(2) Load or unload before the cars in which they are to ride or are riding come to a full stop. Individuals shall proceed in an orderly manner to and from mantrips.

(c) **Adequate clearance and proper illumination.**—Adequate clearance and proper illumination shall be provided where individuals load or unload mantrips.

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

Section 259. Conveyor belts and conveyor equipment.

(a) **Specifications.**—

(1) Except as otherwise provided under paragraph (2), all conveyor entries shall be provided with a minimum width and height of not less than four feet for travel and, 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.

(2) 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 underfoot and 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 underfoot and free from electric wires and electric cables.

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

(c) Automatic stop control.—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.

(d) Electric wires and cables.—All electric wires or electric cables in completed portions of conveyor entries shall be carried on insulators.

(e) Control lines.—Control lines shall be installed the full length of the belt.

(f) Point-type heat sensors.—Point-type heat sensors shall not be used as the primary type of fire sensors in any mine opened more than six months after the effective date of this section.

Section 260. Blowtorches and fuel.

No blowtorch may be used in a mine.

Section 261. Oxygen and gas containers.

(a) General rule.—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) Identification.—All oxygen and gas tanks or cylinders shall be clearly identified.

Section 262. Transportation of oxygen and gas.

(a) General rule.—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 mantrip.

(b) Marking of empty tanks and cylinders.—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 and gas tanks or cylinders shall be transported with the hoses and gauges attached.

(c) Identification of tanks and cylinders.—All oxygen and gas tanks or cylinders shall be clearly identified.

Section 263. Storage of oxygen and gas.

(a) General rule.—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 a one-week supply of oxygen or gas shall be stored in any underground or surface shop. This quantity shall be determined in agreement with the department.

(b) Valves and hoses.—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 shop or surface structure. Valves on empty tanks or cylinders shall be kept closed.

Section 264. Use of oxygen and gas.

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

(b) Training and clothing.—An individual 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 individual using oxygen or gas in and about a bituminous coal mine shall be provided with goggles or shields, and the clothing of such individual shall be reasonably free of oil and grease.

(c) Lighting of torches.—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) Maintenance.—The oxygen or gas hose lines, gauges and similar equipment shall be maintained in safe operating condition. Defective tanks, cylinders, gauges, hose lines, torches and similar equipment shall be taken out of service upon discovery and shall not be put into use until corrected and made safe.

(e) Multiple units permitted.—

(1) Multiple units consisting of one gas tank and one oxygen tank are permitted in a working section when necessary. When not in use, the tanks shall be removed to a point outby the last open crosscut and kept away from power wires and electric equipment. A proper storage area must be provided.

(2) This subsection does not apply to oxygen tanks used to provide breathable air in the event of an emergency.

(f) Pressure.—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 the oxygen or gas.

(g) Working sections.—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 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 satisfied:

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

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

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

(h) Safety requirements.—

(1) 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.

(2) Neither oxygen nor gas shall be used near oil, grease or fine coal dust unless the oil, grease or fine coal dust is adequately cleaned or made inert by the use of rock dust or the area where the work is to be done is thoroughly wetted.

(i) Intake air activity.—Oxygen or gas cutting, burning or welding shall be done in intake air only. Underground shops where oxygen gas burning occurs shall be on a separate split of air.

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

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

(l) Manifolding cylinders.—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) Protection from power lines.—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 265. Duties of individuals subject to this act.

It shall be the duty of each 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 to comply with this act and to cooperate with management and the department in carrying out its provisions. 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 266. Protective clothing.

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

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

(c) Gloves.—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) Protective hats.—All individuals shall wear protective hats while underground and while on the surface where falling objects may cause injury.

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

Section 267. Checking systems.

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

Section 268. Prohibitions regarding endangering security of mine.

(a) Prohibitions regarding ventilation.—No miner, worker or other individual shall knowingly damage, obstruct or remove any shaft, lamp, instrument, air course or other equipment, obstruct or disrupt any portion of the mine's ventilation, carry open lights, open a door closed for directing ventilation and not close it again or enter any part of a mine that has been endangered off. No individual shall deface, pull down or destroy any notice boards, record books or mine maps.

(b) Smoking prohibition.—Open lights, smoking and smokers' articles, including matches, are prohibited in bituminous coal mines. No individual shall at any time enter a mine with or carry into the mine any matches, pipes, cigars, cigarettes or any device for making lights or fire not approved. In all mines, the operator may search or cause to be searched any individual, including his clothing and material belongings, entering or about to enter the mine, or inside the mine, to prevent such individual from taking or carrying into the mine any of the articles prohibited by this subsection.

(c) Intoxicated individuals.—No individual under the influence of alcohol or a controlled substance shall enter into or loiter about any mine. No individual shall have in his possession alcohol or controlled substances while in or about the mine premises. This provision shall not apply to the use of medication as prescribed for that individual.

Section 269. Responsibility for care and maintenance of equipment.

Equipment operators shall exercise reasonable care in the operation of the equipment entrusted to them and shall promptly report defects known to them.

Section 270. Control of dust and other inhalation hazards.

Individuals 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 271. Safeguards for mechanical equipment.

(a) Locking.—The cutting devices of mining machines shall be locked securely by mechanical means or electrical interlocks while the machines are parked or being trammed. Loading machines shall not be trammed with loading arms in motion except when loading materials.

(b) Guarding.—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 individual lubricating or repairing it has given a clear signal. Guards that have been removed shall be replaced before the machinery is again put into use. Provisions shall be made to prevent accumulation of spilled lubricants.

(c) Grinders.—Mechanically operated grinding wheels shall be equipped with safety washers and 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 272. First aid equipment.

In every bituminous coal mine where individuals are employed underground and in every active section of the mine, it shall be the duty of the operator or superintendent of the mine to keep 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 the event of injury to any employee.

Section 273. Fire protection.

(a) Firefighting equipment.—Each mine shall be provided with suitable firefighting equipment adapted for the size and conditions of the mine.

(b) Standards for firefighting equipment.—At a minimum, firefighting equipment shall meet the following:

- (1) Waterlines shall be capable of delivering 50 gallons of water per minute at a nozzle pressure of 50 pounds per square inch.

(2) A portable water car shall be of at least 1,000 gallons capacity and shall have at least 300 feet of fire hose with nozzles. A portable water car shall be capable of providing a flow through the hose of 50 gallons of water per minute at a nozzle pressure of 50 pounds per square inch.

(3) A portable chemical car shall carry enough chemicals to provide a fire extinguishing capacity equivalent to that of a portable water car.

(4) A portable foam-generating machine or device shall have facilities and equipment for supplying the machine with 30 gallons of water per minute at 30 pounds per square inch for a period of 35 minutes.

(5) A portable fire extinguisher shall be either:

(i) A multipurpose dry chemical type containing a nominal weight of five pounds of dry powder and enough expellant to apply the powder.

(ii) A foam-producing type containing at least 2.5 gallons of foam-producing liquids and enough expellant to supply the foam.

(6) Only fire extinguishers approved by the Underwriters Laboratories, Inc., or Factory Mutual Research Corp., carrying appropriate labels as to the type and purpose shall be used. All portable fire extinguishers shall have a 2A 10 BC or higher rating.

(7) The fire hose shall be lined with a flame-resistant material. The cover shall be polyester or other material with flame-spread qualities and mildew resistance equal or superior to polyester. The bursting pressure shall be at least four times the water pressure at the valve to the hose inlet with the valve closed, and the maximum water pressure in the hose nozzle shall not exceed 100 pounds per square inch.

(c) Working sections.—

(1) Each working section of a mine producing 300 tons or more per shift shall be provided with two portable fire extinguishers and 240 pounds of rock dust in bags or other suitable containers. Water lines shall extend to each section loading point and be equipped with enough fire hose to reach each working face unless the section loading point is provided with one of the following:

(i) two portable water cars;

(ii) two portable chemical cars; or

(iii) one portable water car or one portable chemical car, and either:

(A) a portable foam-generating machine; or

(B) a portable high-pressure rock-dusting machine fitted with at least 250 feet of hose and supplied with at least 60 bags of rock dust.

(2) Each working section of a mine producing less than 300 tons of coal per shift shall be provided with:

(i) Two portable fire extinguishers.

(ii) Two hundred and forty pounds of rock dust in bags or other suitable containers.

(iii) At least 500 gallons of water and at least three pails of ten-quart capacity. In lieu of the 500-gallon water supply, a water line with sufficient hose to reach the working places, a portable water car with a 500-gallon capacity or a portable all-purpose dry powder chemical car of at least 125-pound capacity may be provided.

(d) Belt conveyors.—In all mines, water lines shall be installed parallel to the entire length of belt conveyors and shall be equipped with fire hose outlets with valves at 300-foot intervals along each belt conveyor and at tailpieces. At least 500 feet of fire hose with fittings suitable for connection with each belt conveyor water line system shall be stored at strategic locations along the belt conveyor. Water lines may be installed in entries adjacent to the conveyor entry belt as long as the outlets project into the belt conveyor entry.

(e) Haulage tracks.—

(1) In a mine producing 300 tons of coal or more per shift, water lines shall be installed parallel to all haulage tracks using mechanized equipment in the track or adjacent entry and shall extend to the loading point of each working section. Water lines shall be equipped with outlet valves at intervals of not more than 500 feet, and 500 feet of fire hose with fittings suitable for connection with such water lines shall be provided at strategic locations. Two portable water cars, readily available, may be used in lieu of water lines prescribed under this paragraph.

(2) In a mine producing less than 300 tons of coal per shift, there shall be provided at 500-foot intervals in all main and secondary haulage roads:

- (i) a tank of water of at least 55-gallon capacity with at least three pails of not less than ten-quart capacity; or
- (ii) not less than 240 pounds of bagged rock dust.

(f) Transportation.—Each track or off-track locomotive, self-propelled mantrip car or personnel carrier shall be equipped with one portable fire extinguisher.

(g) Electrical installations.—

(1) Two portable fire extinguishers or one extinguisher having at least twice the minimum capacity specified for a portable fire extinguisher specified in subsection (b)(5) shall be provided at each permanent electrical installation.

(2) One portable fire extinguisher and 240 pounds of rock dust shall be provided at each temporary electrical installation.

(h) Oil storage stations.—Two portable fire extinguishers and 240 pounds of rock dust shall be provided at each permanent underground oil storage station. One portable fire extinguisher shall be provided at each working section where 25 gallons or more of oil is stored in addition to extinguishers required under subsection (c).

(i) Welding, cutting and soldering.—One portable fire extinguisher or 240 pounds of rock dust shall be provided at locations where welding, cutting or soldering with arc or flame is being done.

(j) Power lines.—At each wooden door through which power lines pass, there shall be one portable fire extinguisher or 240 pounds of rock dust within 25 feet of the door on the intake air side.

(k) Emergency materials.—

(1) At a mine producing 300 tons of coal or more per shift, there shall be readily available the following materials at locations not exceeding two miles from each working section:

- (i) One thousand board feet of brattice boards.
- (ii) Two rolls of brattice cloth.
- (iii) Two handsaws.
- (iv) Twenty-five pounds of 8d nails.
- (v) Twenty-five pounds of 10d nails.
- (vi) Twenty-five pounds of 16d nails.
- (vii) Three claw hammers.
- (viii) Twenty-five bags of wood fiber plaster or ten bags of cement or equivalent material for stoppings.
- (ix) Five tons of rock dust.

(2) At a mine producing less than 300 tons of coal per shift, the materials set forth in this subsection shall be available at the mine, provided, however, that the emergency materials for one or more mines may be stored at a central warehouse or building supply company and the supply must be the equivalent of that required for all mines involved and within an hour's delivery time from each mine. This exception shall not apply where the active working sections are more than two miles from the surface.

(l) Condition and examination of firefighting equipment.—All firefighting equipment shall be maintained in a usable and operative condition. Chemical extinguishers shall be examined every six months, and the date of the examination shall be written on a permanent tag attached to the extinguisher.

(m) Branch lines.—As a part of the deluge-type water spray system, two or more branch lines of nozzles shall be installed. The maximum distance between nozzles shall not exceed eight feet.

(n) Installation of foam generator systems.—

(1) Foam generator systems shall be located so as to discharge foam to the belt drive, belt take-up, electrical controls, gear-reducing unit and conveyor belt.

(2) Foam generator systems shall be equipped with a fire sensor which actuates the system, and each system shall be capable of producing and delivering the following amounts of foam within five minutes:

- (i) At fire-resistant belt installations, an amount which will fully envelop the belt drive, belt take-up, electrical controls, gear-reducing unit and conveyor belt over a distance of 50 feet.

(ii) At non-fire-resistant belt installations, an amount which will fully envelop the belt drive, belt take-up electrical controls, gear-reducing unit and conveyor belt over a distance of 150 feet.

(3) The foam generator shall be equipped with a warning device designed to stop the belt drive when a fire occurs, and all such warning devices shall be capable of giving both an audible and visual signal when actuated by fire.

(4) Water, power and chemicals required shall be adequate to maintain water or foam flow for no less than 25 minutes.

(5) Water systems shall include strainers with a flush-out connection and a manual shut-off valve.

(o) Water sprinkler systems.—Water sprinkler systems may be installed to protect main and secondary belt-conveyor drives, however, where such systems are employed, they shall be installed and maintained in accordance with subsections (p), (q), (r), (s) and (t).

(p) Installation of water sprinkler systems.—

(1) The fire-control components of each water sprinkler system shall be installed, as far as practicable, in accordance with the recommendations set forth in the National Fire Protection Association, Code No. 13, entitled "Installation of Sprinkler Systems," in effect at the time of installation, and such systems' components shall be of a type approved by the Underwriters Laboratories, Inc., or Factory Mutual Research Corporation.

(2) Each sprinkler system shall provide protection for the motor drive belt take-up, electrical controls, gear-reducing unit and 50 feet of fire-resistant belt or 150 feet of non-fire-resistant belt adjacent to the belt drive.

(3) The components of each water sprinkler system shall be located so as to minimize the possibility of damage by roof fall or by the moving belt and its load.

(q) Arrangement of sprinklers.—

(1) At least one sprinkler shall be installed above each belt drive, belt take-up, electrical control and gear-reducing unit, and individual sprinklers shall be installed at intervals of no more than eight feet along all conveyor branch lines.

(2) Two or more branch lines, at least one of which shall be above the top belt and one between the top and bottom belt, shall be installed in each sprinkler system to provide a uniform discharge of water to the belt surface.

(3) The water discharge rate from the sprinkler system shall not be less than .25 gallon per minute per square foot of the top surface of the top belt, and the discharge shall be directed at both the upper and bottom surfaces of the top belt and to the upper surface of the bottom belt. The supply of water shall be adequate to provide a constant flow of water for ten minutes with all sprinklers functioning.

(4) Each individual sprinkler shall be activated at a temperature of not less than 150 degrees Fahrenheit and not more than 300 degrees Fahrenheit.

(5) Water systems shall include strainers with a flush-out connection and a manual shutoff valve.

(r) Backup water system.—One fire hose outlet together with a length of hose capable of extending to the belt drive shall be provided within 300 feet of each belt drive.

(s) Fire warning devices at belt drives.—Each water sprinkler system shall be equipped with a device designed to stop the belt drive in the event of a rise in temperature, and each warning device shall be capable of giving both an audible and visual warning when a fire occurs.

(t) Examination and test.—Each water sprinkler system shall be examined weekly, and a functional test of the complete system shall be conducted at least once each year.

(u) Equivalent dry-pipe system.—Where water sprinkler systems are installed to protect main and secondary belt conveyor drives and freezing temperatures prevail, an equivalent dry-pipe system may be installed.

(v) Dry-powder chemical systems.—Self-contained dry-powder chemical systems may be installed to protect main and secondary belt conveyor drives; however, where self-contained dry-powder chemical systems are employed, they shall be installed and maintained in accordance with the provisions of subsections (w), (x), (y), (z), (aa), (bb), (cc) and (dd).

(w) Installation of dry-powder chemical systems.—

(1) Self-contained dry-powder chemical systems shall be installed to protect each beltdrive, belt take-up, electrical controls, gear-reducing units and 50 feet of fire-resistant belt or 150 feet of non-fire-resistant belt adjacent to the belt drive.

(2) The fire control components of each dry-powder chemical system shall be a type approved by the Underwriters Laboratories, Inc., or Factory Mutual Engineering Corporation.

(3) The components of each dry-powder chemical system shall be located so as to minimize the possibility of damage by roof fall or by the moving belt and its load.

(x) Construction of dry-powder chemical systems.—

(1) Each self-contained dry-powder system shall be equipped with hose or pipe lines which are no longer than necessary.

(2) Metal piping and hose between control valves and nozzles shall have a minimum bursting pressure of 500 pounds per square inch.

(3) Hose shall be protected by wire braid or its equivalent.

(4) Nozzles and reservoirs shall be sufficient in number to provide maximum protection to each belt, belt take-up, electrical controls and gear-reducing unit.

(5) Each belt shall be protected on the top surface of both the top and bottom belts and the bottom surface of the top belt.

(y) Sensing and fire-suppression devices.—

(1) Each self-contained dry-powder chemical system shall be equipped with sensing devices which shall be designed to activate the fire control system, sound an alarm and stop the conveyor drive motor in the event of a rise in temperature, and provisions shall be made to minimize contamination of the lens of any optical sensing device installed in the system.

(2) Where sensors are operated from the same power source as the belt drive, each sensor shall be equipped with a standby power source which shall be capable of remaining operative for at least four hours after a power cutoff.

(3) Sensor systems shall include a warning indicator or test circuit which shows it is operative.

(4) Each fire suppression system shall be equipped with a manually operated control valve which shall be independent of the sensor.

(z) Dry powder requirements.—Each dry-powder chemical system shall contain the following minimum amounts of multipurpose dry powder:

(1) One hundred and twenty-five pounds of dry powder for fire resistant belts.

(2) Two hundred and twenty-five pounds of dry powder for non-fire-resistant belts.

(aa) Nozzles, flow rate and direction.—The nozzles of each dry-powder chemical system shall be capable of discharging all powder within one minute after actuation of the system, and such nozzles shall be directed so as to minimize the effect of ventilation upon fire control.

(bb) Safeguards for dry-powder chemical systems.—Adequate guards shall be provided along all belt conveyors in the vicinity of each dry-powder chemical system to protect individuals whose vision is restricted by a discharge of powder from the system. Handrails shall be installed in these areas to provide assistance to those passing along the conveyor after a powder discharge.

(cc) Backup water system.—One fire hose outlet, together with a length of hose capable of extending to the belt drive, shall be provided within 300 feet of each belt drive.

(dd) Inspection of dry-powder chemical systems.—

(1) Each dry-powder chemical system shall be examined weekly, and a functional test of the complete system shall be conducted at least once each year.

(2) Where the dry-powder chemical system has been actuated, all components of the system shall be cleaned immediately by flushing all powder from pipes and hoses, and all hose damaged by fire shall be replaced.

Section 274. Mine openings or outlets.

(a) Openings or outlets to the surface.—It shall be unlawful for the operator, superintendent or mine foreman to employ an individual to work in

the mine unless there are no fewer than two intake openings or outlets to the surface from every seam of coal being worked. The openings or outlets shall have a distinct means of egress available for use by the employees. The two intake openings or outlets to the surface required by this section shall not be at a common shaft, slope or drift opening. Mines in operation prior to the effective date of this act are not subject to the requirements under this subsection.

(b) Exception.—The requirements of subsection (a) shall not apply to the openings or outlets of a new mine being worked for the purpose of making connections between the openings or outlets, so long as no more than 20 individuals are employed in making the connections.

(c) Shaft, slope and drift distances.—The distance between shafts shall be not less than 200 feet. The distance between the openings to the surface of slopes and the distance between drifts shall be not less than 50 feet. Exceptions to the distance requirements specified in this subsection may be granted with the written consent of the department. The passageways between openings or outlets shall be maintained in a safe and available condition for the employees to travel. The pillars in entries between the openings or outlets shall not be removed.

(d) Number of entries.—Every mine shall have no fewer than five main entries connected to the openings or outlets to the surface.

(e) Intake and return entries.—The intake and return entries shall be kept reasonably drained and reasonably free from refuse and obstructions of all kinds, so that individuals may safely travel throughout their whole length and have a safe means of egress from workings in case of emergency. The entries shall be separated by pillars of coal of sufficient strength. When the coal seam height is less than four and one-half feet, employees shall be provided a means of transportation in and out of the mine.

(f) Passageway between workings.—In every slope with workings on both sides, an overpass or 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. The overpass or underpass shall connect with available passageways leading to the workings on both sides of the 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 underpass, if substantially built with masonry or other incombustible material, will be deemed sufficient.

(g) Shafts less than 100 feet deep.—If the opening or outlet other than the main opening is a shaft not more than 100 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 dangerous gases and all obstruction, 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 45 degrees, and with landings not

less than 24 inches in width and four feet in length, at easy and convenient distances. Stairways shall be made safe by having handrails of suitable material placed on one side, or on both sides when requested by the department, and shall be inspected every 24 hours by a certified mine official 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 individuals while descending or ascending them.

(h) Shafts more than 100 feet deep.—When a mine is operated by a shaft more than 100 feet in depth, the individuals employed in the shaft 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 designated in this section or with suitable machinery for safely lowering and hoisting individuals in case of an emergency. The emergency hoisting capability may be accomplished by the use of an escapeway capsule with a minimum capacity of two persons.

(i) Slope openings.—At any mine where one of the openings required is a slope and is used as a means of ingress and egress by the employees and where the angle of descent of the slope exceeds 15 degrees and its length from the mouth of the opening exceeds 1,000 feet, the employees shall be lowered into and hoisted from the mine at a speed not to exceed six miles per hour. At any mine where the angle of descent of the slope averages from five to 15 degrees and its length exceeds 3,000 feet, the employees shall be lowered into and hoisted from the mine 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 the owner's or operator's option, be exempt from the requirements of this section if the angle of the travelingway does not exceed 20 degrees.

Section 275. Mining close to abandoned workings.

The superintendent shall not permit the mining of coal in any seam the entire distance to a permit boundary, not including boundaries around reservations or along crop lines, when on the adjoining property there are mine workings in the seam within 3,000 feet of the permit boundary. A barrier pillar shall be left, from the operation to the permit boundary, 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 100 feet or part of 100 feet of cover over the bed at the permit boundary. If the coal on one side of the permit boundary has been mined prior to the effective date of this section closer to the permit boundary than permitted, the barrier pillar to be left in the mine approaching the permit boundary shall be at least equal, when added to that already left in the adjoining mine, to that required on both sides of the permit boundary. If, in the opinion of the department or the superintendent of either mining property, the barrier pillar is deemed insufficient, after due notice to the operator of the adjoining mining property,

one-half of the barrier pillar shall be left on each side of the permit boundary, except as provided in this section. The department, the superintendent or owner of either mining property shall determine the thickness necessary to afford safety and protection. If it is agreed by the department and superintendents of the adjoining coal mining properties that the permit boundary is so located that there is no danger to property or lives in mining coal on either or both sides of the permit boundary up to the permit boundary, then mining to the permit boundary 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.

Section 276. Lubrication and storage of flammable lubricants.

The oiling or greasing of any cars inside any mine is strictly prohibited unless the place where the oil or grease is used is thoroughly cleaned at least once a 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 and 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 the 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.

Section 277. Approved lighting and gas detection devices in mines.

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

(b) Gas detection devices.—All approved gas detection devices used for examining mines shall be in the care of the mine foreman or some other competent individual appointed by the mine foreman, who shall have a duty to examine, test and deliver them in a safe condition to the individuals when entering the mine and to receive gas detection devices from the individuals when returning from work.

(c) Number of devices.—At every mine, a sufficient number of approved gas detection devices shall be kept in good condition for use in case of emergency.

(d) Entrusting of devices.—No approved gas detection devices shall be entrusted to any individual for use in a mine until the individual has given satisfactory evidence to the mine foreman that he understands the proper use of the gas detection device and the danger of tampering with the device.

(e) Duty to return device.—It shall be the duty of every individual who knows their approved gas detection device is defective to return it immediately to a mine official.

Section 278. Unauthorized entry into mine.

Any individual who enters a mine without authorization from the superintendent commits a misdemeanor of the second degree. This section shall not be applicable to any individual who enters a mine in the performance of any duty imposed upon him by this act.

Section 279. Passing by or removing danger signs.

Except as specifically authorized in this act, no employee or other individual shall pass by any danger sign into any mine, or into any portion of any mine, or remove any danger sign before the mine or portion of the mine has been examined and reported to be safe. Any employee or other individual shall not pass by any danger sign placed at the entrance to a working place, or any other place in the mine, or remove the danger sign without permission from the mine foreman, the assistant mine foreman or the mine examiner.

Section 280. Miners to remain in work areas.

Each miner shall remain during working hours in the work area assigned by the mine foreman or the assistant mine foreman.

Section 281. Sealing openings.

(a) Permanently abandoned shafts.—Every shaft permanently abandoned shall be filled for its entire depth. The fill shall extend from the bottom of the coal seam to a height of 50 feet with incombustible material.

(b) Out of service openings.—Every slope, drift or tunnel permanently taken out of service shall be filled for a distance of 25 feet with incombustible material.

(c) Drillholes and boreholes.—All drillholes and boreholes permanently taken out of service after the effective date of this act shall be effectively plugged or sealed.

(d) Openings available for future use.—Every shaft, slope, drift or tunnel, temporarily taken out of service, which may be used for future mining purposes shall be properly sealed or fenced.

Section 282. Ladders in mines.

Permanently installed ladders in mines that are more than ten feet in length and set on an angle of 60 degrees or more with the horizontal shall be provided with substantial backguards, and all ladders shall be maintained in good repair.

Section 283. Inside structures to be of incombustible materials.

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

Section 284. Washhouses.

It shall be the duty of the operator or superintendent of a mine to provide a suitable building, convenient to the principal entrance of the mine, for the use of employees of the mine to wash and change clothes. The building shall be maintained in good order and be properly lighted and heated, shall be provided with hot and cold running water and facilities for individuals to wash and shall include adequate sanitary facilities. The cost of providing and maintaining the conveniences and facilities shall be defrayed by the owner or operator of the mine.

CHAPTER 3 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 chapter for the installation and maintenance of electrical equipment are observed in and around coal mines.

Section 302. Definitions.

As used in this chapter, the following words and terms shall have the meanings given to them in this section unless the context clearly indicates otherwise:

“Armored cable.” A cable provided with a wrapping of metal, usually steel wires or tapes, primarily for the purpose of mechanical protection.

“Borehole cable.” A cable designed for vertical suspension in a borehole or shaft and is used for power circuits in a mine.

“Branch circuit.” A tap taken off a main circuit.

“Cable sheath.” A covering consisting of composition tapes, compound jackets of natural or synthetic rubber or thermoplastic or fiber braids applied over the conductor assembly and insulation of multiple conductor cables.

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

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

“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 a system and the earth, as determined by a voltmeter or other suitable instrument.

“Effectively grounded.” 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.

“Electric system.” All electric equipment and circuits that pertain to the operation of the mine and are under control of the mine management.

“Electrical face equipment.” 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.

“Explosion-proof or flame-proof.” Casings or enclosures which, when completely filled with a mixture of methane and air and the same exploded, are capable of either entirely confining the products of the explosion within the casing or discharging them from the casing so 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 with the points of discharge.

“Flame-resistant cable.” A cable that meets the MSHA testing requirements for flame resistance and has been assigned an approval. A cable shall also be considered flame resistant if it meets the criteria for flame resistance by a nationally recognized testing lab that is equivalent to the MSHA testing criteria and that is appropriately identified. All flame-resistant cables used underground shall have the approval number embossed or indented on the jacket at intervals not to exceed 12 feet.

“Ground.” 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.

“Grounding conductor.” A metallic conductor used to connect the metal frame or enclosure of an equipment, device or wiring system with an effective grounding medium.

“High voltage.” Voltage higher than 1,000 volts nominal.

“Lightning arrestor.” A protective device for limiting surge voltages on equipment by discharging or bypassing surge current and for preventing continued flow of current to ground.

“Low voltage.” Voltage up to 660 volts nominal.

“Machine operator.” An individual who possesses a machine runners certification and is placed in charge of a portable or mobile face machine of any sort where a gas examination is required under this act or regulations promulgated under this act.

“Medium voltage.” Voltage from 661 to 1,000 volts nominal.

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

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

“Neutral point.” 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 in a wye-connected AC power system.

“Nonmetallic armor.” 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.

“Portable trailing cable.” 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 impracticable.

“Potential of a circuit.” The 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 the machine or apparatus.

“Primary ground.” 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 arrester 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.

“Protection.” 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.

“Rectifiers.” Alternating current to direct-current power conversion devices of the mercury-arc, silicon, selenium or other type.

“Shielded cable.” A cable in which the insulated conductor is covered with a conductive material for the purpose of clearing ground faults.

“Voltage.” The phase-to-phase or line-to-line root-mean-square value assigned to a circuit or system for designation as its voltage class. Actual voltage at which the circuit or systems operated may vary from the normal voltage with a range, which permits satisfactory operation of the equipment. The difference of electrical pressure or electromotive force existing between any two points of an electrical system, or between any point of a system and earth, as determined by a volt meter or other instrument. The term shall be synonymous with the term potential and shall mean electrical pressure.

“Wye-connected.” A system in which one end of each phase winding of transformers or AC generators are connected together to form a neutral point and the other ends of the windings are connected to the phase conductors.

“Zig-zag transformer.” 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 the apparatus, and the scale shall not be less than 500 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. The 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.

(a) Electrical work.—No electrical work shall be performed on low-voltage, medium-voltage or high-voltage distribution circuits or equipment except by a qualified individual or by an individual trained to perform electrical work and to maintain electrical equipment under the direct supervision of a qualified individual. Disconnecting devices shall be locked out and suitably tagged by the individuals who perform the work, except that, in cases where locking out is not possible, the devices shall be opened and suitably tagged by such individuals. Locks or tags shall be removed only by

the individual who installed them or, if the individuals are unavailable, by an individual authorized by the operator or the operator's agent.

(b) Insulating materials.—Mats of rubber, insulated platform or other suitable insulating materials shall be provided at all stationary transformers, rectifiers, motors and 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 individuals when 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 individuals suffering from electric shock. All employees working in connection with electrical apparatus shall be familiar with and competent to carry out the 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, overheating or the appearance of sparks or arcs outside 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 individual 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 prescribed in this act, be efficiently covered or safeguarded. The electrical apparatus and conductors shall be installed, operated and maintained to reduce danger from accidental shock or fire to the minimum and shall be constructed and operated so 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) Construction.—Fuses and automatic circuit breakers shall be 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) Trip setting.—Circuit breakers used to protect feeder circuits shall be set to trip when the current exceeds more than 50% of 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 period longer than ten seconds. Trip current shall be indicated at the circuit breaker.

(c) Fuses.—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 individual authorized by the mine foreman.

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

(e) Incombustible base requirement.—All switches, circuit breakers and fuses shall have incombustible bases.

Section 312. Lightning protection.

If the surface transmission lines of low voltage or medium voltage from the generating station are overhead, there shall be lightning arrestors installed at the generating station. If the distance from the generating station to the point where the line enters the mine is more than 500 feet, an additional arrestor shall be installed at that 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 which will trip the circuit breaker when a ground fault is detected. The ground detectors shall be maintained in working condition.

(b) Protection of circuits leading underground.—

(1) In every completely insulated feeder circuit in excess of 25 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 25 kilowatts

or less. Each power circuit in excess of 50 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. The breaker shall be equipped with automatic overload trip, arranged to open simultaneously each ungrounded power-carrying conductor. Each 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 the sheath, insulation or conductors and damage by chafing of cables against each other or against the borehole casing or shaft. All ungrounded 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 25 kilowatts in the same borehole shall require approval of the department.

(d) High-voltage underground transmission systems.—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 the cable is fed by high-voltage systems other than that described in this chapter, 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 this chapter. 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. A competent individual designated by the mine electrician shall supervise the making of the splices.

(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 a mine.

(2) All insulated power cables purchased for use in a mine shall be protected by a flame-resistant jacket and assigned an approval number unless either armored or installed in rigid steel conduit, a metal enclosure or a fireproof room.

(f) Ventilation.—

(1) Bare power conductors shall not be installed in an air current that has passed through or by the first working place in the air split.

(2) 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) Underground cables in haulage roads.—

(1) Where the cables or feed wires, other than trolley wires, in main haulage roads cannot be kept at least 12 inches from any part of a 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 roofs, ribs, walls or timbers by means of efficient insulators. All electric cables constantly kept in rooms or pillars or other work areas shall be carried on suitable supports to within 70 feet of the face of each work area. 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 to 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(h). The circuit breaker shall be equipped with an automatic overload trip arranged to open simultaneously each ungrounded power carrying conductor. Provisions for positive disconnection of the branch circuit shall be included.

(i) Underground transformer and substation rooms.—

(1) Any motor-generator, rectifier except those described in subsection (r), 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. These buildings shall be provided with automatically closing fire doors, but the automatic features of fire doors may be omitted if a substation attendant is employed. The openings of the doors shall be safeguarded by grillwork so that only authorized individuals may enter the room. No electrical equipment containing inflammable material shall be placed within eight feet of a door or opening in the underground building. All 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 20 gallons of inflammable liquid shall be placed in any underground substation. A separate split of air shall adequately ventilate the substation. No substation shall be built in any mine until the location, material, construction and method of ventilation for the substation has received the approval of the department.

(2) Main and distribution switch and fuse boards shall be made of incombustible, moisture-resistant, insulating material and 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-voltage and medium-voltage motors of more than 50 horsepower or 50 KVA capacity shall be installed upon a suitable switchboard or in a metal-clad switchgear structure. Similar equipment for low-voltage and medium-voltage motors of 50 horsepower and less may be separately installed if mounted upon insulating bases of suitable material or effectively metal clad.

(j) Clearances.—

(1) 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. The floor at the back of the switchboard shall be properly floored and insulated with nonconducting material, accessible from each end. 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.

(2) 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 paragraph (1) shall not be less than four feet. Insulating floors or mats shall be provided for medium-voltage boards where live metal work is on the front.

(k) 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 25 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.

(l) **Outgoing feeder protection.**—Main circuits leaving underground substations or transformer stations shall be protected by circuit breakers.

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

(n) **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.”

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

(p) **Unauthorized individuals.**—No individual, other than one authorized by the mine foreman or mine electrician, shall enter a station or transformer room or interfere with the working of any connected apparatus.

(q) **Fire protection.**—Rock dust or fire extinguishers suitable for extinguishing electrical fires shall be kept ready for immediate use at electrical stations and transformer rooms.

(r) **Fireproof rectifiers and transformers.**—A portable rectifier with a dry-type transformer, except those using pumped tubes or glass bulb mercury arc tubes or a dry-type transformer designed for underground use with adequate automatic electrical protection and substantially of fireproof 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 250 feet along the air route to pillar workings. The location where the fireproof rectifier or transformer is installed need not be made fireproof with masonry or steel but shall be equipped with doors, grillwork or otherwise to prevent entry or access by unauthorized individuals.
Section 314. Storage battery equipment.

(a) **General rule.**—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. The split of air ventilating a storage battery charging station may be ventilated to a belt entry when the belt entry air is not used to ventilate working faces and a carbon monoxide monitoring system is in place in the belt entry.

(b) **Flammable materials.**—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) **Use in face areas.**—Storage battery-operated equipment may be used in face areas when all electrical parts that are practicable to enclose are enclosed in explosion-proof casings and the batteries are adequately ventilated.

Section 315. (Reserved).

Section 316. Electrical equipment.

(a) Voltage restriction.—Handheld tools shall be restricted to a maximum of 300 volts.

(b) Grounding.—The frame of all off-track equipment shall be effectively grounded through a safety ground conductor in its trailing cable.

(c) Handheld tools.—Electric drills and other electrically operated rotating tools intended to be hand held 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 equipment shall be safely and efficiently insulated and constructed with an outer sheath or jacket of flame-resistant material as approved by the department.

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

(3) The machine operator shall examine the exposed portion of the trailing cable for his machine at the beginning of each shift for abrasions and other defects. The remainder of the trailing cable shall be examined within the first hour upon the arrival of the producing shift in the working section. The machine operator shall also carefully observe the trailing cable while in use and shall immediately 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 it inflicting a shock upon any individual, 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 individual.

(5) The trailing cable shall be divided at the machine to which it is supplying power but only for such length as is necessary for making connection to the machine terminals. The trailing 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 strains on 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 splice is made, the cable shall be changed before the machine is operated on the following shift. Trailing cables on equipment without a cable reel shall have no temporary splices within 50 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 them from being run over and damaged by mobile machinery.

(8) Trailing cables on off-track equipment shall contain a safety ground conductor, which shall be solidly connected to the machine frame. Cables found to contain defective grounds shall be repaired before use or shall be replaced. The safety ground conductor shall have a cross-

sectional area of at least 50% 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 electrical equipment in use in by the last open crosscut shall have all current-carrying parts completely enclosed in explosion-proof enclosures. This requirement shall not include trailing cable, except where terminated, and shall not include flexible cable as required between motors, controllers, terminal boxes and other auxiliaries. The enclosures shall not be opened except by an authorized individual and then only when the power is switched off. The power shall not be switched on while the enclosures are open. Only permissible equipment is permitted in by the last permanent stopping, except in rooms where open-type equipment may be used only in intake travelways. This exception does not include power distribution equipment.

(f) Safeguarding.—The individual in charge of mobile electrical equipment shall not leave the equipment while it is working and shall, before leaving the work area, see that power is cut off the trailing cables.

(g) Explosion-tested compartments.—All explosion-tested compartments and packing glands shall be maintained as approved by the department.

(h) Detection of gas.—

(1) In working places, an approved handheld gas detection device shall be provided for use with each machine when working. If methane gas is detected in an amount of 1% or greater, the individual in charge shall immediately stop the machine, cut off the current at the nearest switch and report the matter to a mine official.

(2) When not in use, equipment shall be parked away from the face. No electrically operated permissible face equipment shall be taken in by the last open breakthrough until the machine operator assures that an inspection for gas has been made in the place where the machine is to be in operation. If methane gas is detected in an amount of 1% or greater by a gas detection device, the machine shall not be taken in. The place shall be danged off until the gas has been removed or rendered harmless.

(3) No electrically operated equipment shall be in use for a period longer than 20 minutes without a check for methane gas as required under this subsection. If methane gas is found at 1% or greater, the individual in charge shall immediately stop the machine, cut off the current at the nearest switch and report the matter to a mine official.

(4) The individual 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 that place until the mine examiner or an individual duly authorized by the mine foreman has examined it and pronounced it safe.

(5) If any electric sparking or arc is produced outside 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.

(i) Methane monitors.—

(1) Methane monitors shall be installed on all face-cutting machines and other mechanized equipment used to extract or load coal in a mine. The sensing device for methane monitors shall be installed at the return end of the longwall face. An additional sensing device shall also be installed on the longwall shearing machine, down wind and as close to the cutting head as is practicable. The sensing devices for methane on other types of machines shall be installed as close to the working face as is practicable. Methane monitors shall be maintained in permissible and proper operating conditions and shall be calibrated with a known air-methane mixture at least once every 31 days. To assure that methane monitors are properly maintained and calibrated, the operators shall do all of the following:

(i) Use individuals properly trained in the maintenance, calibration and permissibility of methane monitors to calibrate and maintain the devices.

(ii) Maintain a record of all calibration tests of methane monitors. Records shall be maintained in a secure book that is not susceptible to alteration or electronically in a computer system so as to be secure and not subject to alteration.

(iii) Retain the record of calibration tests for one year from the date of the test. Records shall be retained at a surface location at the mine and made available to department representatives and representatives of the mine workers.

(2) When the methane concentrations at any methane monitor reach 1%, the monitor shall give a warning signal. The warning signal of the methane monitor shall be visible to the mining machine operator who can de-energize electric equipment or shut down diesel equipment on which the monitor is mounted. A gas check shall be completed in accordance with this act if at any time the methane concentrations at any methane monitor reach 1.5%. This shall only apply if the methane monitor maintains a warning signal for methane concentrations of 1.5%.

(3) The methane monitor shall automatically de-energize electric equipment or shut down diesel-powered equipment when the methane accumulation reaches 2% or the methane monitor is not operating properly.

Section 317. Inspection of equipment.

(a) Inspection required.—All electrical equipment shall be inspected by the mine electrician or individual designated by the mine electrician weekly and, where necessary, shall be cleaned and repaired.

(b) Removal of coal dust.—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 devices shall be installed in a convenient position near the motor, and every stationary underground motor of 100 brake horsepower or over shall be provided with a suitable meter to indicate the load on the machine.

Section 319. Underground electrical installations.

(a) **Housing.**—Underground transformer stations, battery charging stations, substations, rectifiers and water pumps shall be housed in noncombustible structures or areas or be equipped with a fire suppression system.

(1) When a noncombustible structure or area is used, these installations shall be:

(i) ventilated with intake air that is coursed into a return air course or to the surface and that is not used to ventilate working places;

(ii) ventilated with intake air that is monitored for carbon monoxide or smoke by an atmospheric monitoring system installed and operated according to 30 CFR 75.351 (relating to atmospheric monitoring systems). Monitoring of intake air ventilating battery charging stations shall be done with sensors not affected by hydrogen; or

(iii) ventilated with intake air and equipped with sensors to monitor for heat and for carbon monoxide or smoke. Monitoring of intake air ventilating battery charging stations shall be done with sensors not affected by hydrogen. The sensors shall de-energize power to the installation, activate a visual and audible alarm located outside of and on the intake side of the enclosure and activate doors that will automatically close when either of the following occurs:

(A) the temperature in the noncombustible structure reaches 165 degrees Fahrenheit; or

(B) the carbon monoxide concentration reaches ten parts per million above the ambient level for the area or the optical density of smoke reaches .022 per meter. At least every 31 days, sensors installed to monitor for carbon monoxide shall be calibrated with a known concentration of carbon monoxide and air sufficient to activate the closing door, or each smoke sensor shall be tested to determine that it functions correctly.

(2) When a fire suppression system is used, these installations shall be:

(i) ventilated with intake air that is coursed into a return air course or to the surface and that is not used to ventilate working places; or

(ii) ventilated with intake air that is monitored for carbon monoxide or smoke by an atmospheric monitoring system installed and operated according to 30 CFR 75.351. Monitoring of intake air ventilating battery charging stations shall be done with sensors not affected by hydrogen.

(b) Applicability.—This section does not apply to:

(1) Rectifiers and power centers with transformers that are either dry-type or contain nonflammable liquid if they are located at or near the section and are moved as the working section advances or retreats.

(2) Submersible pumps.

(3) Permissible pumps and associated permissible switchgear.

(4) Pumps located on or near the section and that are moved as the working section advances or retreats.

(5) Small portable pumps.

Section 320. Underground illumination.

(a) Sockets.—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 provided under subsection (c).

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

(c) Portable electric lamps.—Portable electric lamps, other than battery lamps, shall not be used in connection with the 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 lamp enclosure.—Electric lamps, when used in face areas of any mine, shall be installed in explosion-proof enclosures.

(e) Electric lamp replacement.—Electric lamps shall be replaced by a competent individual. In face areas, a qualified individual shall be utilized after an examination for gas has been made with an approved gas detection device.

(f) Underground photography.—Underground photography using flash bulbs or other sources of artificial illumination shall be prohibited unless immediately preceded by an examination for gas by a mine foreman, assistant mine foreman or mine examiner, and the place is found safe.

Section 321. Telephones and signaling.

(a) Telephone service.—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 1,500 feet from the main portal.

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

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

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

(e) Precautions.—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) Standards generally.—Bells, wires, insulators, contact makers and other apparatus used in connection with electric signaling underground shall be of suitable design and 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) Potential.—In the face areas of any mine, the potential used for signal purposes shall not exceed 24 volts, and bare wires shall not be used for signal circuits.

(h) Voltage on signal circuits.—The voltage on signal circuits confined to intake air and using insulated conductors may be greater than 24 volts, but shall not exceed 125 volts average. This shall not apply to haulage block signal systems.

Section 322. Grounding.

(a) General rule.—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) Negative side to be grounded.—Only the negative side of the direct-current circuit shall be grounded.

(c) Rectifier diodes.—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 effective.

(d) Initial installation.—The initial installation of rectifiers at any bituminous coal mine shall be approved by the department before being energized.

Section 323. Voltage limitation.

In no case shall the potential used in the trolley system be higher than 600 volts.

Section 324. Incoming feeder-disconnect switches.

Disconnecting switches shall be installed underground in all main direct-current power circuits within 500 feet of the bottom of shafts, boreholes or at other places where main power circuits enter a mine.

Section 325. Bonding.

Where air or water pipes parallel the grounded return of power circuits, the return shall be securely bonded to the pipes at frequent intervals to eliminate the possibility of a difference of voltage 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 200 feet apart. On secondary haulage roads, one rail shall be bonded continuously.

Section 326. Trolley installation.

(a) Trolley wires and feeder lines.—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 24 feet apart and efficiently insulated.

(b) Prohibition.—In all mines, trolley and feeder wires shall not extend beyond the last open crosscut and shall be kept at least 150 feet from open pillar workings.

(c) Switches or circuit breakers.—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 the branch headings. Switches or circuit breakers shall be provided on haulage roads to de-energize all trolley and feeder lines at intervals not to exceed 2,000 feet.

Section 327. Connections to trolley.

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

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

(c) Safety ground and negative connections.—Safety ground and negative connections for temporary or permanent installations shall be made at two separate points, at least six inches apart, and 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 individuals 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. 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.—Electric haulage by trolley locomotive is not permitted except on intake air.

(b) Certain operation prohibited.—It shall be unlawful 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 places where the roof has collapsed.

(c) Certain use proscribed.—No open-type electric locomotive or open-type electric machine of whatsoever type shall be taken into a working place.

Main return airways or passageways shall not be used as haulageways for electric locomotives operated from a trolley wire.

Section 330. Outdoor substation.

The outdoor substation shall be built in accordance with current Institute of Electrical and Electronics Engineers' standards and department equipment performance specification 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 15,000 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 the use of a three-phase zig-zag or grounding transformer. Where 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 25 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) 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 15 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 25 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 four ohms or less of ground bed 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) Underground.—High-voltage cables leading underground and extending underground shall be of the multiple conductor flame-resistant type with 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. A competent individual designated by the mine electrician shall supervise the making of splices.

(b) Subject to flexing.—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) Couplers.—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) Equipment passing over or under cable.—At locations where cables cross haulageways or travelways or where equipment must pass over or under the cable, the cables shall be either installed in a trench in the roof, protected by some mechanical means or buried at least 12 inches below combustible

material and adequately protected from crushing by the weight of equipment passing over it.

(e) Location of installation.—High-voltage cables shall be installed only in intake airways. They may be installed on intake haulageways only with the approval of the department. The cable may be installed by hanging on suitable hooks or clamps, supported by a suitable messenger cable, burying or installing in metal conduit. When suspended, the distance between supports shall not exceed 20 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 12 inches from the trolley wire or feeder wires and away from the track.

(f) Excess cable.—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 endangering off the storage area. The cable shall not exceed 1,000 feet in length.

(g) Frames and enclosures.—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.—Taps or branch circuits from the high-voltage feeder shall be made through circuit breakers or suitable load break switches.

(i) Non-load-breaking disconnect switches.—When non-load-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 de-energized before the disconnected switches are opened.

(j) Applicability.—For the purpose of interpretation and compliance with subsection (h) and section 313(h), the following apply:

(1) A branch circuit is a subportion of the high-voltage system, serving one or more loads. The branch circuit begins at the junction or splitting of the high-voltage system. The junction consists of the following distinct elements:

(i) Input feeder, which delivers power from the source.

(ii) Output feeder, which may extend the feeder to other parts of the high-voltage system.

(iii) Branch circuit.

The output feeder is not considered as a branch circuit and is not required to have electrical protection at the junction, but receives electrical protection either at the source substation or at some place between the source substation and the junction. The branch circuit is required to have protection at the junction.

(2) A tap supplies power to the high-voltage loads located entirely within the enclosure where the connection is made. Where no splitting of the feeder cable occurs, neither a tap nor branch is created.

(3) A suitable load-break switch, which may be used in lieu of a circuit breaker, is a gang-operated switch with a voltage rating not less than the system voltage capable of interrupting a current equal to its continuous full load rating and to be used in conjunction with fuses to provide overload and short circuit protection for the load being served.

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 section 331(c).

(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. The following apply:

(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 section 330(4) 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 25 amperes or less. The inby side of the resistor shall be grounded to the load center frame if no DC equipment powered from a common mine DC system can contact the frames of AC equipment powered by this load center. In the event there is a possibility of frame contact between AC equipment and DC equipment supplied from a common DC mine system, the inby side of the resistor may be insulated from the load center frame and shall be solidly connected to the DC 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 arranged so 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 or located closer than 250 feet along the air route to pillar workings.

Section 333. Distribution centers.

(a) General rule.—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 that may be encountered. The distribution center shall contain breakers adequate to interrupt any fault current that might occur, which shall feed each unit of equipment that is connected to the distribution center. Each breaker shall be equipped with tripping devices that 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 or closer than 150 feet from pillar workings unless the distribution center shall have an approved explosion-proof enclosure.

(b) Cables.—Utilization voltage cables shall be fitted with plug couplers and provisions 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) Ground conductors.—Utilization voltage conductors, cables or conductor groups shall contain one or more ground conductors which when combined shall be able to carry safely and continuously at least twice the maximum ground fault current.

(d) Option.—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, this section shall apply. However, when an external DC distribution device is employed, the rectifier output may be taken through a main DC circuit breaker to that device without the use of a plug and receptacle system.

Section 334. Mandatory safety components of electrical equipment.

(a) Requirement.—Low-voltage, medium-voltage and high-voltage resistance ground systems shall have ground wire monitors to continuously monitor the continuity of the grounding circuits to the equipment affected, except for:

(1) Low-voltage and medium-voltage circuits supplying power to longwall illumination systems.

(2) Low-voltage and medium-voltage stationary equipment installed in accordance with all of the following:

(i) The equipment is permanently installed at a fixed location.

(ii) All load components are securely attached to a common metallic frame or structure.

(iii) Each component of the equipment is grounded by two independent equipment safety grounding, each sized appropriately.

(iv) At least one of the equipment safety ground conductors to each component is visible for its entire length. High-voltage resistance grounded systems shall have ground wire monitors to continuously monitor the continuity of the grounding circuits. All ground wire monitors shall be designed and constructed to be failsafe.

(b) Study.—The mining industry shall initiate a study to enhance the safety of underground direct-current machine cables. The program shall include an evaluation of ground wire monitors for use on all direct-current equipment. The program shall include laboratory and underground testing. The test results shall be documented and presented to the Board of Coal Mine Safety no later than 365 days after the effective date of this act for action by the board.

(c) Additional study.—The mining industry shall initiate a study to enhance the safety of underground cables. The program shall include an evaluation of metallic shielded cable, nonmetallic shielded cable and more sensitive ground fault limiting and detection. The program shall include laboratory and underground testing. The results shall be documented and presented to the Board of Coal Mine Safety no later than 365 days after the effective date of this act for action by the board.

(d) Plugs.—If plugs are used on any cable in a mine, the plugs must be interlocked.

Section 335. High-voltage longwalls.

Sections 336 through 344 are electrical safety standards that apply to high-voltage longwall circuits and equipment. All other standards established under this act also apply to longwall circuits and equipment when appropriate. The department shall consider existing Federal interpretations of comparable standards when implementing and enforcing these requirements.

Section 336. Longwall electrical protection.

(a) High-voltage circuits.—High-voltage circuits must be protected against short circuits, overloads, ground faults and undervoltages by circuit-interrupting devices of adequate interrupting capacity as follows:

(1) Current settings of short-circuit protective devices must not exceed the setting specified in approval documentation or 75% of the minimum available phase-to-phase short-circuit current, whichever is less.

(2) Time-delay settings of short-circuit protective devices used to protect any cable extending from the section power center to a motor-

starter enclosure must not exceed the settings specified in approval documentation or one-quarter second, whichever is less. Time-delay settings of short-circuit protective devices used to protect motor and shearer circuits must not exceed the settings specified in approval documentation or three cycles, whichever is less.

(3) Ground-fault currents must be limited by a neutral grounding resistor to not more than:

(i) six and one-half amperes when the nominal voltage of the power circuit is 2,400 volts or less; or

(ii) three and three-quarters of an ampere when the nominal voltage of the power circuit exceeds 2,400 volts.

(4) High-voltage circuits extending from the section power center must be provided with all of the following:

(i) Ground-fault protection set to cause de-energization at not more than 40% of the current rating of the neutral grounding resistor.

(ii) A backup ground-fault detection device to cause de-energization when a ground fault occurs with the neutral grounding resistor open.

(iii) Thermal protection for the grounding resistor that will de-energize the longwall power center if the resistor is subjected to a sustained ground fault. The thermal protection must operate at either 50% of the maximum temperature rise of the grounding resistor or 150 Centigrade or 302 Fahrenheit, whichever is less, and must open the ground-wire monitor circuit for the high-voltage circuit supplying the section power center. The thermal protection must not be dependent upon control power and may consist of a current transformer and overcurrent relay.

(5) High-voltage motor and shearer circuits must be provided with instantaneous ground-fault protection set at not more than 0.125 of an ampere.

(6) Time-delay settings of ground-fault protective devices used to provide coordination with the instantaneous ground-fault protection of motor and shearer circuits shall not exceed one-quarter second.

(7) Undervoltage protection shall be provided by a device which operates on low voltage to cause and maintain the interruption of power to a circuit to prevent automatic restarting of the equipment.

(b) Current transformers.—Current transformers used for the ground-fault protection specified in subsection (a)(1), (4)(i) and (5) must be single window type and must be installed to encircle all three-phase conductors. Equipment safety grounding conductors must not pass through or be connected in series with ground-fault current transformers.

(c) Test circuit.—Each ground-fault current device specified in subsection (a)(4)(i) and (5) must be provided with a test circuit that will inject a primary current of 50% or less of the current rating of the grounding

resistor through the current transformer and cause each corresponding circuit-interrupting device to open.

(d) Prohibition.—Circuit-interrupting devices shall not reclose automatically.

(e) Multiple cables.—Where two or more high-voltage cables are used to supply power to a common bus in a high-voltage enclosure, each cable must be provided with ground wire monitoring. The ground wire monitoring circuits must cause de-energization of each cable when either the ground monitor or grounding conductor of any cable becomes severed or open. On or after the effective date of this section, parallel-connected cables on newly installed longwalls must be protected as follows:

(1) when one circuit-interrupting device is used to protect parallel-connected cables, the circuit-interrupting device must be electrically interlocked with the cables so that the device will open when any cable is disconnected; or

(2) when two or more parallel circuit-interrupting devices are used to protect parallel-connected cables, the circuit-interrupting devices must be mechanically and electrically interlocked. Mechanical interlocking shall cause all devices to open simultaneously and electrical interlocking shall cause all devices to open when any cable is disconnected.

Section 337. Longwall disconnect switches.

(a) Section power center.—The section power center must be equipped with a main disconnecting device installed to de-energize all cables extending to longwall equipment when the device is in the open position.

(b) Maintenance.—Disconnecting devices for motor-starter enclosures must be maintained in accordance with the department's approval. The compartment for the disconnect device must be provided with a caution label to warn miners against entering the compartment before de-energizing the incoming high-voltage circuits to the compartment.

(c) Rating.—Disconnecting devices must be rated for the maximum phase-to-phase voltage of the circuit in which they are installed and for the full load current of the circuit that is supplied power through the device.

(d) Installation.—Each disconnecting device must be designed and installed so that:

(1) Visual observation determines that the contacts are open without removing any cover.

(2) All load power conductors can be grounded when the device is in the open position.

(3) The device can be locked in the open position.

(e) Capability.—Disconnecting devices, except those installed in explosion-proof enclosures, shall be capable of interrupting the full load current of the circuit or designed and installed to cause the current to be interrupted automatically prior to the opening of the contacts of the device. Disconnecting devices installed in explosion-proof enclosures shall be maintained in accordance with the department's approval.

Section 338. Guarding of longwall cables.

(a) High-voltage cables.—High-voltage cables shall be guarded at the following locations:

(1) Where individuals regularly work or travel over or under the cables.

(2) Where the cables leave cable handling or support systems to extend to electric components.

(b) Intent and design of guarding.—Guarding shall minimize the possibility of miners contacting the cables and protect the cables from damage. The guarding shall be made of grounded metal or nonconductive flame-resistant material.

Section 339. Longwall cable-handling and support systems.

Longwall mining equipment shall be provided with cable-handling and support systems that are constructed, installed and maintained to minimize the possibility of miners contacting the cables and to protect the high-voltage cables from damage.

Section 340. Use of longwall insulated cable handling equipment.

(a) General rule.—Energized high-voltage cables shall not be handled except when motor or shearer cables need to be trained. When cables need to be trained, high-voltage insulated gloves, mitts, hooks, tongs, slings, aprons or other personal protective equipment capable of providing protection against shock hazard shall be used to prevent direct contact with the cable.

(b) Standards, examinations, testing and replacement.—High-voltage insulated gloves, sleeves and other insulated personal protective equipment shall:

(1) have a voltage rating of at least Class 1, 7,500 volts, that meets or exceeds ASTM F496-97, Standard Specification for In-Service Care of Insulating Gloves and Sleeves (1997);

(2) be examined before each use for visible signs of damage;

(3) be removed from the underground area of the mine or destroyed when damaged or defective; and

(4) be electrically tested every six months.

Section 341. Maintenance.

Compartment separation and cover interlock switches for motor-starter enclosures shall be maintained in accordance with section 342.

Section 342. High-voltage longwall mining systems.

(a) General rule.—In each high-voltage motor-starter enclosure, with the exception of a controller on a high-voltage shearer, the disconnect device compartment, control/communications compartment and motor contactor compartment shall be separated by barriers or partitions to prevent exposure of personnel to energized high-voltage conductors or parts. Barriers or partitions shall be constructed of grounded metal or nonconductive insulating board.

(a.1) High-voltage shearers.—In each motor-starter enclosure on a high-voltage shearer, the high-voltage components shall be separated from lower

voltage components by barriers or partitions to prevent exposure of personnel to energized high-voltage conductors or parts. Barriers or partitions shall be constructed of grounded metal or nonconductive insulating board.

(b) Interlock switches.—Each cover of a compartment in the high-voltage motor-starter enclosure containing high-voltage components shall be equipped with at least two interlock switches arranged to automatically de-energize the high-voltage components within that compartment when the cover is removed.

(c) Circuit-interrupting devices.—Circuit-interrupting devices shall be designed and installed to prevent automatic reclosure.

(d) Transformers.—Transformers with high-voltage primary windings that supply control voltages shall incorporate grounded electrostatic (Faraday) shielding between the primary and secondary windings. The shielding shall be connected to the equipment ground by a minimum No. 12 AWG grounding conductor. The secondary nominal voltage shall not exceed 120 volts, line to line.

(e) Test circuits.—Test circuits shall be provided for checking the condition of ground wire monitors and ground-fault protection without exposing personnel to energized circuits. Each ground-test circuit shall inject a primary current of 50% or less of the current rating of the grounding resistor through the current transformer and cause each corresponding circuit-interrupting device to open.

(f) Disconnect devices.—Each motor-starter enclosure, with the exception of a controller on a high-voltage shearer, shall be equipped with a disconnect device installed to de-energize all high-voltage power conductors extending from the enclosure when the device is in the open position.

(1) When multiple disconnect devices located in the same enclosure are used to satisfy the requirement of this subsection, they shall be mechanically connected to provide simultaneous operation by one handle.

(2) The disconnect device shall be rated for the maximum phase-to-phase voltage and the full-load current of the circuit in which it is located and installed so that:

(i) visual observation determines that the contacts are open without removing any cover;

(ii) the load-side power conductors are grounded when the device is in the open position;

(iii) the device can be locked in the open position;

(iv) when located in an explosion-proof enclosure, the device shall be designed and installed to cause the current to be interrupted automatically prior to the opening of the contacts; and

(v) when located in a nonexplosion-proof enclosure, the device shall be designed and installed to cause the current to be interrupted automatically prior to the opening of the contacts, or the device shall be capable of interrupting the full-load current of the circuit.

(g) Starters to be interlocked.—Control circuits for the high-voltage motor starters shall be interlocked with the disconnect device so that:

(1) The control circuit can be operated with an auxiliary switch in the test position only when the disconnect device is in the open and grounded position.

(2) The control circuit can be operated with the auxiliary switch in the normal position only when the disconnect switch is in the closed position.

(h) Determination of minimum available fault current.—A study to determine the minimum available fault current shall be submitted to the department to ensure adequate protection for the length and conductor size of the longwall motor, shearer and trailing cables.

(i) Shielded construction of certain cables.—Longwall motor and shearer cables with nominal voltages greater than 660 volts shall be made of a shielded construction with a grounded metallic shield around each power conductor.

(j) Instantaneous ground fault protection.—High-voltage motor and shearer circuits shall be provided with instantaneous ground fault protection of not more than 0.125 of an ampere. Current transformers used for this protection shall be of the single window type and shall be installed to encircle all three-phase conductors.

Section 343. Longwall electrical work.

(a) Qualified workers.—Electrical work on all circuits and equipment associated with high-voltage longwalls shall be performed by MSHA-qualified persons.

(b) Procedures for work on circuits and equipment.—Except for troubleshooting and testing of energized circuits and equipment as provided under subsection (d), prior to performing electrical work, a qualified individual shall do the following:

(1) De-energize the circuit or equipment with a circuit-interrupting device.

(2) Open the circuit-disconnecting device. On high-voltage circuits, ground the power conductors until work on the circuit is completed.

(3) Lock out the disconnecting device with a padlock. When more than one qualified individual is performing work, each individual shall install an individual padlock.

(4) Tag the disconnecting device to identify each individual working and the circuit or equipment on which work is being performed.

(c) Restrictions relating to low-voltage, medium-voltage or high-voltage distribution circuits or equipment.—No electrical work shall be performed on low-voltage, medium-voltage or high-voltage distribution circuits or equipment, except by a qualified individual or an individual trained to perform electrical work and to maintain electrical equipment under the direct supervision of a qualified individual. Disconnecting devices shall be locked out and suitably tagged by the individuals who perform the work, except that, in cases where locking out is not possible, the devices shall be opened and

suitably tagged by individuals performing the work. Locks or tags shall be removed only by the individuals who installed them or, if such individuals are unavailable, by individuals authorized by the operator or his agent.

(d) Troubleshooting and testing of energized circuits.—Troubleshooting and testing of energized circuits must be performed only:

(1) On low-voltage and medium-voltage circuits.

(2) When the purpose of troubleshooting and testing is to determine voltages and currents.

(3) By an individual qualified to perform electrical work and who wears protective gloves. Rubber-insulating gloves shall be rated at least for the nominal voltage of the circuit when the voltage of the circuit exceeds 120 volts nominal and is not intrinsically safe.

(e) Troubleshooting and testing of multiple voltage circuits.—Before troubleshooting and testing a low-voltage or medium-voltage circuit contained in a compartment with a high-voltage circuit, the high-voltage circuit must be de-energized, disconnected, grounded, locked out and tagged in accordance with subsection (b).

(f) Conveyor belt structures.—Prior to the installation or removal of a conveyor belt structure, high-voltage cables extending from the section power center to the longwall equipment and located in the belt entries shall be:

(1) deenergized; or

(2) guarded in accordance with section 338, at the location where the belt structure is being installed or removed.

Section 344. Testing, examination and maintenance of longwall equipment.

(a) Equipment subject to seven-day inspection schedule.—At least once every seven days, a MSHA-qualified individual shall test and examine each unit of high-voltage longwall equipment and circuits to determine that electrical protection, equipment grounding, permissibility cable insulation and control devices are being properly maintained to prevent fire, electrical shock, ignition or operational hazards from existing on the equipment. Tests shall include activating the ground-fault test circuit.

(b) Equipment subject to 30-day inspection schedule.—Each ground-wire monitor and associated circuits shall be examined and tested at least once every 30 days to verify proper operation and to verify that it will cause the corresponding circuit-interrupting device to open.

(c) Removal or repair of equipment.—When examinations or tests of equipment reveal a fire, electrical shock, ignition or operational hazard, the equipment must be removed from service immediately or repaired immediately.

(d) Certifications and records.—At the completion of examinations and tests required by this section, the individual who makes the examinations and tests shall certify by signature and date that they have been conducted. A record shall be made of any unsafe condition found and any corrective action taken. Certifications and records shall be kept for at least one year and shall

be made available for inspection by authorized representatives of the department and representatives of miners.

Section 345. (Reserved).

Section 346. (Reserved).

Section 347. (Reserved).

Section 348. (Reserved).

Section 349. (Reserved).

Section 350. Equipment approvals.

(a) Departmental discretion.—The department may require the approval of all underground equipment, surface substations feeding power underground, fans and personnel conveyances (elevators, man hoists and escape capsules) connected to an underground mine. All elevators at the time of installation shall meet the criteria established in the current American Society of Mechanical Engineers A17.1 Safety Code, pertaining to special application elevators, mine elevators, connected to an underground mine. The equipment shall be grouped as follows for the purposes of approval:

(1) Bituminous face equipment (BFE) - permissible equipment.

(2) Bituminous open type equipment (BOTE) - nonpermissible equipment.

(3) Bituminous power distribution equipment (BPDE) - nonpermissible power equipment.

(4) Surface installations:

(i) Mine power substations (MM-S).

(ii) Fans I (MM-F).

(iii) Personnel conveyances (MM-P).

(5) Minewide monitoring systems (MWMS).

(b) Limitation of approvals.—The approvals under subsection (a) are specifically limited by the provision that permissible equipment approved by the MSHA Approval and Certification Center that is not in conflict with and which meets the requirements of this act shall be deemed to be approved by the department.

(c) Procedures for approval.—The procedures for approval of underground and surface equipment are as follows:

(1) Approvals shall be limited to electrical systems, safety systems required by this act and specifications developed by the task force established by the parties and provided for under subsection (d).

(2) Newly purchased permissible equipment shall be constructed in a fashion as to provide accessibility for inspection of permissible components.

(3) The evaluation to determine whether the equipment should be approved shall be based strictly on the specific criteria set forth in this act and the performance specifications under subsection (d). In the absence of performance specifications for equipment or specific provisions of this act addressing such equipment and if the department considers that the

equipment as designed or built poses an unacceptable risk to the health or safety of miners, the following procedure shall be applied:

(i) The department, in a written report, shall specify the unacceptable risk, based upon objective ascertainable data and criteria approved by a nationally recognized standards organization.

(ii) The department shall convene a task force to develop specifications for the equipment in an expedited fashion.

(iii) If the task force is unable to develop applicable performance standards within 75 days, the department may continue to withhold approval based upon noncompliance with a mandatory safety standard of a nationally recognized standards organization that has been shown to be appropriate for mining.

(4) For new equipment, the prototype of which has not been previously approved, a manufacturer or operator shall submit to the department an application requesting approval. The request for approval shall include four schematics, a description and any other pertinent information for the equipment.

(5) The application under paragraph (4) shall be reviewed within 15 working days after receipt. Within the 15-day period, the department shall communicate verbally and in writing to the applicant all discrepancies between the application and the equipment performance specifications. If the department does not communicate to the applicant within the 15 days as described in this paragraph, the application shall be deemed approved. If the applicant submits additional schematics or information, the department shall have an additional 15 days to communicate to the applicant concerning such additional schematics or information.

(6) When the application review under paragraph (5) is complete, an inspector shall be assigned to evaluate the equipment and the operator or manufacturer notified of that assignment. The equipment inspection shall be scheduled within 20 working days of the departmental inspector being notified. If the inspector gets to the inspection site and the equipment is not in conformance with the specific criteria set forth in this act and the performance specifications described in this section, the time frame shall stop. When the equipment has been modified to conform with the specific criteria set forth in this act and the performance specifications, the operator shall notify the department for a reinspection, and the department shall schedule the reinspection within ten working days. If the equipment is in conformance with the specific criteria set out in this act and the performance specifications described in this section, but the schematics are not, the equipment can be used, but the operator or manufacturer shall have ten working days to resubmit the corrected schematics or the equipment shall be taken out of service.

(7) For previously approved equipment that an operator proposes to modify, the approval procedure established for new equipment that has not been previously approved is to be applicable. The approval process

shall address only the modification that has been made and shall not require changes to the components of the equipment that were initially approved. For the purpose of this paragraph, modification shall not include changes to equipment in which components are changed and replaced with components that provide equivalent protection. Modifications subject to approval shall include only those changes to equipment which affect whether the equipment still satisfies the applicable performance specifications described in this section or set out specifically in this act.

(8) Approved equipment and repaired equipment that has not been modified are outside the scope of the approval process and shall be handled under the mine inspection program of the department.

(9) Any direction to take corrective action shall be in writing and shall specify the provisions of this act or the performance specifications upon which the department relies.

(10) The department has the right to inspect equipment to determine that it is in compliance with applicable requirements of this act and the equipment performance specifications. The inspections shall be performed in the normal course of inspecting the mine and shall, to the extent feasible, minimize the disruption of production.

(11) New or rebuilt equipment that has been approved, but has not been inspected by an approval inspector, shall be inspected by a mine electrical inspector. The operator shall give reasonable notice to the mine electrical inspector for an inspection prior to the equipment entering the mine. The inspection shall be performed in the normal course of inspecting the mine and shall, to the extent feasible, minimize the disruption of production.

(d) Written criteria for equipment performance specifications.—A task force shall be established to develop written criteria for equipment performance specifications.

(1) The task force shall be comprised of equal numbers of representatives, not less than two nor more than four, selected by the department and the major trade association representing coal operators in this Commonwealth. Final consensus on performance specifications shall be determined by a majority of the task force.

(2) The task force shall develop performance specifications for approval of equipment and reserves the right, for just cause, to add or delete from the developed equipment performance specifications.

(3) All equipment performance specifications approved pursuant to the stipulation of settlement shall remain in effect unless and until they are modified, suspended or revoked by this act, regulations promulgated under this act or the equipment performance specifications task force.

(e) Definitions.—As used in this section, the following words and phrases shall have the meanings given to them in this subsection:

“Permissible equipment.” As applied to electric face equipment, all electrically operated equipment taken into or used in or by the last open crosscut of an entry or a room of any coal mine the electrical parts of which equipment, including, but not limited to, associated electrical equipment, components and accessories, are designed, constructed and installed in accordance with the specifications of MSHA to assure that the equipment will not cause a mine explosion or mine fire, and the other features of which are designed and constructed, in accordance with the specifications of the Department of Environmental Protection, to prevent, to the greatest extent possible, other accidents in the use of the equipment.

CHAPTER 4 DIESEL-POWERED EQUIPMENT

Section 401. Underground use.

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

(b) Required attendant.—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) Required certifications or approvals.—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 a MSHA Part 7 approval plate ventilation rate exceeding 75 c.f.m. per rated horsepower. If MSHA promulgates new regulations that change the MSHA Part 7 approval plate ventilation rate, the c.f.m. requirement per rated horsepower shall be revised either up or down on a direct ratio basis upon recommendation of the technical advisory committee in accordance with section 424.

Section 402. Diesel-powered equipment package.

(a) Approval.—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 under this chapter.

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

Section 403. Exhaust emissions control.

(a) Exhaust emissions control systems.—

(1) Except as provided in paragraph (3), underground diesel-powered equipment shall include an exhaust emissions control and conditioning

system that has been laboratory tested with the diesel engine 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/m³ when diluted by 100% of the MSHA Part 7 approval plate ventilation rate for that diesel engine. If MSHA promulgates new regulations that change the MSHA Part 7 approval plate ventilation rate, the dilution percentage relative to the approval plate ventilation rate shall be adjusted either up or down on a direct ratio basis upon recommendation of the technical advisory committee in accordance with section 424.

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

(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 technical advisory committee that reliably verifies that the exhaust emissions control and conditioning system meets, for each diesel engine, the in-laboratory diesel particulate matter standard established by this subsection. Data provided to satisfy this paragraph 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 technical advisory committee that reliably verifies that the exhaust emissions control and conditioning system shall 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) Components of exhaust emissions system.—The exhaust emissions control and conditioning system shall include the following:

(1) A diesel particulate matter (DPM) filter that has proven capable of a reduction in total diesel particulate matter to a level that does not exceed the requirements of subsection (a)(1). However, the technical advisory committee may evaluate, in accordance with section 424, alternative technologies that have the ability to meet the 0.12 mg/m³ standard.

(2) An oxidation catalyst or other gaseous emissions control device capable of reducing undiluted carbon monoxide emissions to 100 parts per million 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 302 degrees Fahrenheit.

(4) A system capable of reducing the exhaust gas temperature below 302 degrees Fahrenheit.

(5) An automatic engine shutdown system that shuts off the engine before the exhaust gas temperature reaches 302 degrees Fahrenheit and, if water-jacketed components are used, before the engine coolant temperature reaches 212 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 permissible diesel equipment, any additional MSHA regulations must be met.

(c) Diagnostics systems.—Onboard 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). The diagnostics system shall identify levels that exceed the engine 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.

Section 404. Ventilation.

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

(b) Approvals.—Each specific model of diesel-powered equipment shall be approved by the department before it is taken underground. The department shall require that an approval plate 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 under section 419.

(c) Minimum air quantities.—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) Multiple units in operation.—Where multiple units are operated, the minimum quantity shall be at least the total of 100% of MSHA's Part 7 approval plate ventilation rate for each 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. If MSHA promulgates new regulations that change the MSHA Part 7 approval plate ventilation rate, the minimum quantity where multiple units are operated shall be revised on a direct ratio basis upon recommendation of the technical advisory committee in accordance with section 424.

(e) Minimum quantities of air in certain splits.—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), (b) and (c) and shall be specified in the mine diesel ventilation plan.

Section 405. Fuel storage facilities.

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

(b) Diesel fuel standards.—Diesel-powered equipment shall be used underground only with fuel that meets the standards of the most recently approved Environmental Protection Agency (EPA) guidelines for over-the-road fuel. Additionally, the fuel shall also meet the ASTM D975 standards with a flash point of 100 degrees Fahrenheit or greater at standard temperature and pressure. The operator shall maintain a copy of the most recent delivery receipt from the supplier to verify that the fuel used underground meets this standard.

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

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

(2) No more than 500 gallons of diesel fuel shall be stored in each underground diesel fuel storage facility.

(d) Location.—Underground diesel fuel storage facilities shall be located as follows:

(1) at least 100 feet from shafts, slopes, shops and explosives magazines;

(2) at least 25 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) Construction requirements.—

(1) Underground diesel fuel storage facilities shall meet the construction requirements and safety precautions under this subsection.

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

(i) Be constructed of noncombustible materials and provided with either self-closing or automatic closing doors.

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

(iii) Be equipped with an automatic fire suppression system complying with section 408. The technical advisory committee may recommend for approval an alternate method of complying with this section on a mine-by-mine basis in accordance with section 424.

(iv) Be equipped with at least two portable 20-pound multipurpose dry-chemical-type fire extinguishers.

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

(vi) Be included in the preshift examination.

(3) Welding or cutting other than that performed in accordance with paragraph (4) shall not be done within 50 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 the containers or tanks have been thoroughly purged and cleaned or rendered inert 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 406. Transfer of diesel fuel.

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

(b) Pump transfers.—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) Compressed gas prohibition.—Diesel fuel shall not be transferred using compressed gas.

(d) Status of diesel engine.—Diesel fuel shall not be transferred to the fuel tank of diesel-powered equipment while the equipment's engine is running.

(e) Dry-system design.—Diesel fuel piping systems shall be designed and operated as dry systems.

(f) Standards for pipes, valves and fittings.—All piping, valves and fittings shall meet the following requirements:

- (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) Manual shutoff valves.—Vertical pipelines shall have manual shutoff valves installed at the surface filling point and at the underground discharge point.
- (h) Exposed fuel pipelines.—Unburied diesel fuel pipelines shall not exceed 300 feet in length and shall have shutoff valves located at each end of the unburied pipeline.
- (i) Horizontal pipeline prohibition.—Horizontal pipelines shall not be used to distribute fuel throughout a mine.
- (j) Limitation on piping systems.—Diesel fuel piping systems shall be used only to transport fuel from the surface directly to a single underground diesel fuel transfer point.
- (k) Restrictions related to boreholes.—When boreholes are used, the diesel fuel piping system shall not be located in a borehole with electric power cables.
- (l) Inspections.—Diesel fuel pipelines located in any shaft shall be included as part of the required examination of the shaft.
- (m) Location in entries.—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) Trolley-haulage limitations.—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) Protection.—Diesel fuel piping systems shall be protected to prevent physical damage.

Section 407. Containers.

- (a) General rule.—Containers for the transport of diesel fuel shall meet the requirements of this section.
- (b) Limitations on containers.—Diesel fuel shall be transported only in containers specifically designed for the transport of diesel fuel.
- (c) Limitations on vehicle transport.—No more than one safety can, conspicuously marked, shall be transported on a vehicle at any time.
- (d) Standards for containers other than safety containers.—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) Tanks with manual gauging.—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) Capacity of containers.—Containers used for the transport of diesel fuel shall not exceed a capacity of 500 gallons.

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

(h) Method of transportation.—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 500 gallons each may be transported together.

(i) Prohibition.—Diesel fuel shall not be transported on conveyer belts.

(j) Fire extinguisher.—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 20 pounds.

(k) Fire suppression systems for diesel transportation units.—Diesel fuel transportation units shall have a fire suppression system that meets the requirements of section 408.

(l) Limitations where trolley wires are present.—In mines where trolley wire is used, diesel fuel transportation units shall be provided with insulating material to protect the units from any energized trolley wire and the distance between the diesel fuel transportation unit and the trolley wire shall not be less than 12 inches or the trolley wire shall be de-energized when diesel fuel transportation units are transported through the area.

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

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

(o) Standards for safety cans.—Safety cans shall be clearly marked, have a maximum capacity of five gallons, be constructed of metal and be equipped with a nozzle and self-closing valves.

Section 408. Fire suppression for equipment and transportation.

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

(b) Type system.—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 shall be 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) Automatic fire detection and suppression.—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) Fault and fire alarm annunciators.—The fire suppression system shall include a system fault and fire alarm annunciator that can be seen and heard by the equipment operator.

(e) Automatic engine shutdown.—The fire suppression system shall provide for automatic engine shutdown. Engine shutdown and discharge of suppressant agent may be delayed for a maximum of 15 seconds after the fire alarm annunciator alerts the operator.

(f) Manual actuators.—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 409. Fire suppression for storage areas.

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

(b) Type system.—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 shall 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) Automatic fire detection and suppression.—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) Types of alarms.—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 individuals are underground. A means shall also be provided for warning all endangered individuals in the event of fire.

(e) Manual actuators.—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) System operation.—The fire suppression system shall remain operative in the event of electrical system failure.

(g) Monitoring of certain systems.—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) Weekly visual inspection.—Fire suppression devices shall be visually inspected at least once each week by an individual qualified to make the inspection.

(i) Maintenance, testing and records.—Each fire suppression device shall be tested and maintained. A record shall be maintained of the inspection required by this subsection. The record of the weekly inspections shall be maintained at an appropriate location for each fire suppression device.

(j) (Reserved).

(k) Instructions.—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 410. Use of certain starting aids prohibited.

The use of volatile or chemical starting aids is prohibited.

Section 411. Fueling.

(a) Restrictions on fueling locations.—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, which shall be investigated by the technical advisory committee in accordance with section 424, outlining the special safety precautions that will be taken to insure the protection of miners. The submitted plan shall specify a location, such as the end of the tail piece track or adjacent to the load out point, where fueling shall be conducted in the intake escapeway and all other safety precautions that shall be taken, which shall include an examination of the area for spillage or fire by a qualified individual.

(b) Spill cleanup.—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 in a mine.

(c) Trained individual on duty.—At least one individual 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 412. Fire and safety training.

(a) Training of underground employees.—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 Part 48 (relating to training and retraining of miners) or included in the fire drills required under MSHA regulations relating to program of instruction; location and use of fire fighting equipment; location of escapeways, exits and routes of travel; evacuation procedures; and fire drills.

(b) Training of miners.—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 shall be made for safe handling and disposal of these filters within a timely manner after they have reached the surface.

Section 413. Maintenance.

(a) General rule.—Diesel-powered equipment shall be maintained in an approved and safe condition as described in this chapter 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 followed. Upon receiving the

appropriate notification, the mine operator shall have 30 days to submit a plan to achieve and maintain compliance. The 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) Acquisition and maintenance of approvals.—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 422.

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

- (i) the specified routine maintenance schedule;
- (ii) onboard performance and maintenance diagnostics readings;
- (iii) emissions test results; and
- (iv) component manufacturers' recommendations.

Section 414. Records.

(a) General rule.—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) Written certification.—The individual 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) Results.—Records of emissions tests and examinations shall include the specific results of such tests and examinations.

(d) Content.—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) Preoperational examination record retention.—Records of preoperational examinations shall be retained for the previous 100-hour maintenance cycle.

(f) Certain records to be countersigned.—Records of emissions tests, 100-hour maintenance tests and repairs shall be countersigned once each week by the certified mine electrician or mine foreman.

(g) Other record retention.—Except as specified in subsection (e), all records 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 and by miners and their representatives.

Section 415. Duties of equipment operator.

(a) Preoperational examination.—Prior to use of a piece of diesel-powered equipment during a shift, an 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 414.

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

(1) Check all onboard 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 onboard 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 212 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 414.

Section 416. Schedule of maintenance.

At intervals not exceeding 100 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 418.

(20) If the equipment is approved with a nondisposable diesel particulate filter, a smoke dot test of the filtered exhaust must be performed at this time. The results of the smoke dot test shall be recorded on the 100-hour emissions form. If the interpreted smoke dot number is greater than three, the technical advisory committee shall be notified and shall investigate to determine if the filter is functioning properly.

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

(22) Comply with the recordkeeping requirements pursuant to section 414.

Section 417. Emissions monitoring and control.

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

(b) Determination of baseline emission values.—When any diesel-powered equipment first enters service at a mine, baseline emission values shall be determined by a qualified mechanic. Unless the technical advisory committee in accordance with section 424 recommends an alternate procedure, 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) Measure and record the exhaust backpressure. If exhaust gas back pressure is above that recommended by the manufacturer, steps must be taken to bring the exhaust gas back pressure within the manufacturer's recommended limit prior to beginning the test described in this subsection.

(7) Test the brakes.

(8) Place the equipment into an intake entry.

(9) Set the brakes and chock the wheels.

(10) Install an exhaust gas analyzer into the untreated exhaust gas port.

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

(12) Put the engine into a loaded condition. For this section, the loaded condition for the baseline emissions testing shall be determined by the technical advisory committee by determining CO₂ values that are representative of the MSHA lug curve readings for that engine model and horsepower.

(13) Start the exhaust gas analyzer and allow the engine to operate in the loaded condition for a sufficient length of time not less than a 90-second duration to insure proper CO readings. The qualified mechanic shall record both CO and CO₂ readings. Note: Baseline CO values shall be determined by the technical advisory committee based upon MSHA lug curve readings for that engine model and horsepower. If the baseline CO values are greater than the MSHA lug curve values, the technical advisory committee shall investigate and either recommend approval or disapproval or recommend alternate methods of meeting the requirements of this section.

(14) Comply with recordkeeping requirements pursuant to section 414.

(15) An alternative to the testing provided in paragraphs (1) through (14) may be developed by the technical advisory committee in accordance with section 424.

(16) Emissions test procedures for this section shall be submitted to the technical advisory committee in accordance with section 424 prior to being implemented for each engine and equipment type.

Section 418. Diagnostic testing.

(a) Tests.—At intervals not exceeding once every 100 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 do all of the following:

(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 carbon monoxide 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 exhaust gas back pressure is above that recommended by the manufacturer, take steps to bring the exhaust gas back pressure within the manufacturer's recommended limit prior to beginning the test described in this section.
- (10) Put the engine into a loaded condition. As used in this paragraph, the term "loaded condition" shall mean a condition in which the carbon dioxide values are representative of the MSHA lug curve values for that engine model and horsepower rating.
- (11) Take the following steps:
 - (i) Start the exhaust gas analyzer.
 - (ii) Allow the engine to operate for a sufficient time, not less than 90 seconds, to insure proper carbon monoxide readings and record both carbon monoxide and carbon dioxide readings.
- (12) Install the exhaust gas analyzer into the treated exhaust port and repeat steps set forth in paragraphs (10) and (11).
- (13) If the average carbon monoxide reading for untreated exhaust gas is greater than twice the baseline established under section 417(b) or if the average carbon monoxide reading for treated exhaust gas is greater than 100 parts per million, the equipment has failed and shall be serviced and retested before it is returned to regular service.

(14) Comply with recordkeeping requirements under section 414.

(b) Procedures.—Emissions test procedures for this section must be submitted to the technical advisory committee under section 424 prior to being implemented for each engine and equipment type.

(c) Alternative procedure.—An alternative to the testing provided in subsection (a) may be developed by the technical advisory committee under section 424.

Section 419. Exhaust gas monitoring and control.

(a) Concentration.—In monitoring and controlling exhaust gases, the ambient concentration of exhaust gases in the mine atmosphere shall not exceed 35 parts per million for carbon monoxide and three parts per million for nitrogen dioxide. The concentration of these exhaust gases shall be measured at the equipment operator's or equipment attendant's position and 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 individual and shall be conducted under the requirements of this section.

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

(c) Changes.—If the concentration of a gas listed in subsection (a) is at least 75% of its exposure limit, changes to the use of the diesel equipment, the mine ventilation or the mining process shall be made.

(d) Excessive exposure.—If the concentration of a gas listed in subsection (a) exceeds the exposure limit, the diesel equipment operating in that split shall be removed from service immediately, and corrective action shall be 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 75% of the exposure limit. Corrective action shall be taken until the concentration does not exceed 75% of the exposure limit before the diesel equipment can be returned to full operation.

(e) Compliance.—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 418 shall be conducted:

(i) prior to any piece of diesel-powered equipment being put into service; and

(ii) 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 and compliance with the engine or emissions control operation specifications and, as needed, based on the on-board diagnostics or emissions test results. Accurate records shall be maintained of service and maintenance under this paragraph.

Section 420. Training and general requirements.

(a) Approval.—Training course instructors and training plans required by this section shall be approved by the department. Operator training and qualification shall meet the requirements of this section.

(b) Conduct.—

(1) 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.

(2) Training 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.

(3) Each operator shall be qualified by attending a minimum eight-hour course, including classroom training on diesel fundamentals and equipment-specific hands-on training on the job. Training shall include instruction in the following classroom subjects:

(i) Engine fundamentals. This subparagraph includes an introduction to the function of a diesel engine and recognition of major components and their functions.

(ii) Diesel regulations. This subparagraph includes an introduction to Federal and State regulations governing the use of diesel equipment.

(iii) Diesel emissions. This subparagraph includes an introduction to diesel emissions and their adverse health effects.

(iv) Factors which affect diesel emissions. This subparagraph includes a detailed presentation of engine faults and diesel fuel quality, their effect on emissions and the preventive actions which can be taken to minimize emissions levels.

(v) Emissions control devices. This subparagraph includes 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.

(vi) Diagnostic techniques. This subparagraph includes a presentation of techniques which 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 which may cause increases in emissions.

(vii) Preoperational inspection. This subparagraph includes a presentation of the purpose, benefits and requirements of the preoperational inspection.

(viii) Ventilation. This subparagraph includes an introduction to special ventilation requirements for areas where diesel-powered equipment will operate.

(ix) Fire suppression system. This subparagraph includes an introduction to the fire suppression system and its function and when and how to activate the fire suppression manually.

(x) Operating rules. This subparagraph includes a detailed presentation of the driving rules, safe driving speeds, traffic control devices and equipment limitations.

(xi) Emergency procedures. This subparagraph includes discussion of:

(A) emergencies, such as fire, diesel fuel spills, component failure, loss of ventilation air and emergency escape procedures; and

(B) potential use of the diesel-powered vehicle as an emergency escape vehicle in case of a mine emergency.

(xii) Recordkeeping and reporting procedures. This subparagraph includes a presentation on required recordkeeping and reporting procedures for problems or unsafe conditions, high emissions levels and preoperational inspections made by the equipment operator.

(c) Certificate.—Upon successful completion of both training sessions, the operator shall be issued a certificate of qualification which qualifies the operator 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.—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) Annual certificate.—A new certificate of qualification shall be issued annually after the equipment operator has received the annual refresher training.

Section 421. Equipment-specific training.

(a) Approval.—Training course instructors and training plans required by this section must be approved by the department.

(b) Description.—

(1) 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.

(2) The following subjects shall be included in the training:

(i) Equipment layout. This subparagraph includes familiarization with the layout of the equipment, the operator's compartments and the controls.

(ii) Preoperation inspection. This subparagraph includes familiarization with the preoperation inspection procedure and review of specific details of the inspection and location of the components to be inspected.

(iii) Equipment limitations. This subparagraph includes instruction relating to equipment performance, speeds, capacities and blind areas.

(iv) Operating areas. This subparagraph includes instruction relating to areas in which the equipment may be operated.

(v) Operation. This subparagraph includes familiarization with the controls, gauges and warning devices and safe operating limits of all indicating gauges.

(vi) Refueling procedure. This subparagraph includes familiarization with fuel handling, permissible refueling areas, spill prevention, cleanup and potential hazards from diesel fuel.

(vii) Emergency devices. This subparagraph includes instruction relating to the location and use of the fire extinguisher and fire suppression devices.

(viii) Driving practice. This paragraph includes supervised operation of the equipment.

Section 422. Diesel mechanic training.

(a) Approval.—Training course instructors and training plans required by this section must be approved by the department.

(b) General rule.—Diesel mechanic training and qualification shall meet the requirements of this section.

(c) Skills.—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.

(d) Qualification.—To be qualified, a diesel mechanic shall successfully complete a minimum of 16 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 shall 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.

(e) Retraining.—Annual retraining programs for diesel mechanics shall be required and shall be approved by the department. Retraining shall include refresher training as well as new procedure and new technology training as necessary. Retraining 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.

(f) Programs.—The minimum diesel mechanic training programs 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) Onboard 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, which may only be repaired and adjusted by a qualified

mechanic who has received special training and is authorized to make the 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 423. Operation of diesel-powered equipment.

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

(b) Attended equipment.—Diesel-powered equipment shall be attended while in operation with the engine running in underground mines.

(c) Idling.—Unnecessary idling of diesel-powered equipment is prohibited.

(d) Access.—Roadways where diesel-powered equipment is operated shall be maintained as free as practicable from bottom irregularities debris and wet or muddy conditions, which affect control of the equipment.

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

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

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

(h) Maintenance.—

(1) Diesel-powered equipment shall be maintained in a safe operating condition which does not threaten health of human beings.

(2) Diesel-powered equipment not maintained in accordance with paragraph (1) 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 424. Technical advisory committee.

(a) Establishment.—The Technical Advisory Committee on Diesel-Powered Equipment is established.

(b) Membership.—The advisory committee shall consist of two members who shall be residents of this Commonwealth.

(1) The Governor shall appoint one member to represent the viewpoint of the coal operators in this Commonwealth within 30 days from receipt of a list containing one or more nominees submitted by the major trade association representing coal operators in this Commonwealth.

(2) The Governor shall appoint one member to represent the viewpoint of the working miners in this Commonwealth within 30 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) Terms.—Each member of the technical advisory committee shall be appointed for a term of three years. If renominated and reappointed, a member may serve an unlimited number of successive three-year terms.

(d) Functions.—The technical advisory committee has the following functions:

(1) Advising the department regarding implementation of this chapter.

(2) Evaluating alternative technology or methods for meeting the requirements for diesel-powered equipment as set forth in this chapter.

(3) Providing technical assistance to operators regarding diesel equipment technologies.

(4) Conducting investigations relating to implementation of this chapter.

(5) Providing training regarding diesel equipment emission controls and emission testing.

(e) Compensation.—Members of the technical advisory committee shall be compensated at the appropriate per diem rate based on the prevailing formula administered by the Commonwealth, but not less than \$150 per day, plus all reasonable expenses incurred while performing their official duties. Compensation shall be adjusted annually by the department to account for inflation based on the rate of inflation identified by the Consumer Price Index for All Urban Consumers, Bureau of Labor Statistics. The individual member may waive his right to all or part of the compensation set forth in this provision.

(f) Meetings.—The technical advisory committee shall meet at least twice during each calendar year.

(g) Quorum.—Actions of the technical advisory committee require the participation of both members.

(h) Support.—

(1) The department shall make clerical support and assistance available to enable the technical advisory committee to carry out its duties. Upon the request of both members of the technical advisory committee, the department may draft proposed conditions of use and reports or perform investigations.

(2) The department shall purchase for the technical advisory committee equipment for testing diesel engine exhaust emissions and measuring diesel engine surface temperatures and exhaust gas temperatures. Alternative technology or methods recommended by the technical advisory committee or approved by the secretary shall not reduce or compromise the level of health and safety protection afforded by this chapter.

(i) Alternative technologies.—

(1) Upon application of a coal miner, coal mine operator or diesel-related technology manufacturer or on its own motion, the technical

advisory committee shall consider requests for the use of alternative diesel-related health and safety technologies with general underground mining industry application which are consistent with this chapter. The following apply:

(i) Upon receipt of an application, the technical advisory committee shall conduct an investigation, which shall include consultation with a representative of the major trade association representing coal operators in this Commonwealth and with a representative of the major employee organization representing coal miners in this Commonwealth.

(ii) Approval of an application made under this subsection shall make the alternative technology or method available for use by a coal mine operator in this Commonwealth but shall not be construed to require that a coal mine operator use the approved alternative technology or method.

(2) Upon application of a coal mine operator, the technical 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 technical advisory committee shall conduct an investigation, which 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 and an individual employed by an employee organization representing miners at the mine or an individual authorized as the representative of miners of the mine in accordance with MSHA regulations at 30 CFR Pt. 40 (relating to representative of miners). If there is no authorized representative of the miners, the technical advisory committee shall consult with a reasonable number of miners at the mine.

(3) Within 180 days of receipt of an application for use of alternative technologies or methods, the technical advisory committee shall complete its investigation and make a recommendation to the secretary. The technical advisory committee members shall only recommend approval of an application if, at the conclusion of the investigation, the committee members have made a determination that the use of the alternative technology or method will not reduce or compromise the level of health and safety protection afforded by this chapter. The time period under this paragraph may be extended with the consent of the applicant.

(4) The technical 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. A recommendation under this subparagraph must be made in writing and include the results of the

investigation and specific conditions of use for the alternative technology or method.

(ii) A unanimous recommendation to reject the application for use of alternative technologies or methods. A recommendation under this subparagraph must be made in writing and outline in detail the basis for the rejection.

(iii) A divided recommendation in which one member of the technical 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. For a recommendation under this subparagraph, each member of the committee must submit a detailed report to the secretary within 14 days of the committee's vote outlining the member's position for or against the application.

(5) The secretary shall proceed as follows:

(i) Alternative technologies or methods may be approved by the secretary if they do not reduce or compromise the level of health and safety protection afforded by this chapter.

(ii) If a recommendation under paragraph (4)(i) or (ii) is forwarded to the secretary by the technical advisory committee, the secretary shall have 30 days in which to render a final decision adopting or rejecting the advisory committee's recommendation and the application.

(iii) The secretary may only approve or reject a recommendation under paragraph (4)(i) or (ii) without modification unless the modification is unanimously approved by the technical advisory committee.

(iv) If a recommendation under paragraph (4)(iii) is forwarded to the secretary, the secretary shall convene, within 30 days, a meeting with the members of the technical 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 committee.

(v) The following apply:

(A) The secretary shall render a decision on the application within 30 days from the date of the meeting with the technical advisory committee or, if no meeting is convened, within 60 days of forwarding of the recommendation.

(B) Upon consent of the applicant, the time period under clause (A) may be extended.

(C) Except as set forth in clause (B), if the secretary does not comply with the time requirements to render a decision under this subparagraph, the technical advisory committee's recommendation shall be deemed rejected.

(6) Action taken by the secretary under this subsection is subject to 2 Pa.C.S. Ch. 7 Subch. A (relating to judicial review of Commonwealth

agency action) and the act of July 13, 1988 (P.L.530, No.94), known as the Environmental Hearing Board Act.

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

CHAPTER 5 ENFORCEMENT AND REMEDIES

Section 501. Enforcement orders and duty to comply.

(a) Authority.—

(1) The department may issue written orders to enforce this act, to effectuate the purposes of this act and to protect the health and safety of miners and individuals in and about mines.

(2) An order issued under this act shall take effect upon notice, unless the order specifies otherwise.

(3) An appeal to the Environmental Hearing Board shall not act as a supersedeas.

(b) Compliance.—It is the duty of any person to whom an order applies to comply with that order.

Section 502. Restraining violations.

(a) Department.—In addition to any other remedies provided by law, the department may seek an injunction to restrain any of the following:

(1) Violation of this act, a regulation promulgated under this act or any approval, standard, order or permit issued under this act.

(2) Creation and maintenance of a threat to the health and safety of miners and individuals in and about mines.

(b) Court.—

(1) In a proceeding under subsection (a), the court may do any of the following:

(i) Issue an injunction if it finds reasonable cause to believe that the respondent is engaging in conduct which:

(A) violates this act, a regulation promulgated under this act or any approval, standard or order issued under this act; or

(B) poses a threat to the health and safety of miners and individuals in and about mines.

(ii) Levy civil penalties against the respondent.

(2) The courts of common pleas and the Commonwealth Court are granted jurisdiction to hear and decide proceedings brought under subsection (a).

(c) Bond.—The department is not required to post bond in connection with proceedings brought under this section.

Section 503. Administrative penalties.

(a) Declaration of threat.—The following actions by mine officials are declared to pose an imminent and substantial threat to the health and safety of miners:

- (1) Assigning an employee without training or proper certification.
- (2) Requiring or condoning a violation of this act, a regulation promulgated under this act or any approval, standard or order issued under this act.
- (3) Failing to perform a required examination.
- (4) Failing to address promptly the dangers identified through a mine examination or inspection by the department.
- (5) Supplying inaccurate information to the department.
- (6) Failing to notify the department as required by this act.
- (7) Failing to de-energize electrical power as required by this act.
- (8) Failing to evacuate the mine when required to do so by a provision of this act.

(b) Penalty for mine officials and operator liability.—

(1) If the department finds that a mine official has engaged in any of the actions under subsection (a), the department may assess an administrative penalty of up to \$2,500 against the mine official. In every instance in which an administrative penalty is assessed against a mine official, the department may assess an administrative penalty of the same amount against the operator of the mine where the violations occurred.

(2) If the department finds that the operator directed or condoned an unsafe act or a violation of the act:

- (i) the department may assess an administrative penalty of not less than \$10,000 and not more than \$200,000 against the operator; and
- (ii) the individual that directed or condoned the action shall be removed from any position of command and control.

(c) Nonexclusive remedy.—Assessment of a penalty under this section does not preclude the department from exercising any other remedy available to it.

(d) Factors.—In determining the amount of a penalty, the department shall consider the following:

- (1) The degree to which the conduct was reckless or intentional.
- (2) Whether an individual was fatally or seriously injured.
- (3) The potential for the violation resulting in death or serious injury to an individual.
- (4) Whether the conduct is in violation of an outstanding order.
- (5) In the case of an operator, the economic benefit to the operator from not complying with the applicable requirements.

(e) Practice and procedure.—A penalty under this section is subject to:

- (1) 2 Pa.C.S. Chs. 5 Subch. A (relating to practice and procedure of Commonwealth agencies) and 7 Subch. A (relating to judicial review of Commonwealth agency action); and

(2) 25 Pa. Code Ch. 1021 (relating to practice and procedures).

(3) The act of July 13, 1988 (P.L.530, No.94), known as the Environmental Hearing Board Act.

Section 503.1. Process for assessing administrative penalties.

(a) Assessment process.—If the department assesses an administrative penalty, it shall inform the operator and mine official, as applicable, of the amount of the penalty. The person assessed with the penalty shall then have 30 days to pay the penalty in full or, if the person wishes to contest the amount of the penalty, the person shall, within the 30-day period, file an appeal of the department's assessment with the Environmental Hearing Board. Failure to appeal within 30 days shall result in a waiver of all legal rights to contest the amount of the penalty.

(b) Prepayment of administrative penalty.—If the operator or mine official wishes to contest either the amount of the penalty or the violation, the operator or mine official shall forward an amount not greater than \$25,000 to the department for placement in an escrow account with the State Treasurer or any bank located in this Commonwealth or post an appeal bond in the amount of the proposed penalty, provided that the bond shall be executed by a surety licensed to do business in this Commonwealth and is satisfactory to the department. If, through administrative or judicial review of the penalty, it is determined that no violation occurred or that the amount of the penalty should be reduced, the department shall within 30 days remit the appropriate amount to the operator or mine official, with any interest accumulated by the escrow deposit. Failure to forward the money or the appeal bond to the department within 30 days shall result in a waiver of all legal rights to contest the violation or the amount of the penalty.

(c) Payment of penalty.—The amount assessed after administrative hearing or waiver shall be payable to the Commonwealth of Pennsylvania, Mine Safety Fund, and shall be collectible in any manner provided under law for the collection of debts. If any person liable to pay any penalty neglects or refuses to pay it after demand, the amount, together with interest and any costs that may accrue, shall constitute a judgment in favor of the Commonwealth upon the property of the person from the date it has been entered and docketed or recorded by the prothonotary of the county where such property is situated. The department may, at any time, transmit to the prothonotaries of the respective counties certified copies of the judgments, and it shall be the duty of each prothonotary to enter and docket the judgments in the prothonotary's office, and to index it as judgments are indexed, without requiring the payment of costs as a condition precedent to the entry of the judgment.

Section 504. Unlawful conduct.

It is unlawful for a person to do any of the following:

(1) Violate this act, a regulation under this act or any approval, standard or order under this act.

(2) Cause or assist another in a violation under paragraph (1).

(3) Hinder or threaten an agent or employee of the department in the course of performance of a duty under this act, including entry and inspection.

(4) Do any of the following on mine property:

- (i) Venture into areas with an unsupported roof.
- (ii) Fail to make required gas checks.
- (iii) Work on energized equipment without de-energizing, locking out and tagging that equipment.
- (iv) Change approved equipment without obtaining the department's approval.
- (v) Circumvent a safety device.
- (vi) Disable an alarm.
- (vii) Possess or use alcohol, drugs or smoking materials in an unlawful manner on mine property.
- (viii) Assign an employee without training or proper certification to perform the assigned work.
- (ix) Require or condone a violation of this act, a regulation under this act or any approval, standard or order under this act.
- (x) Require or condone performance of an unsafe act.
- (xi) Fail to perform a required examination.
- (xii) Fail to abate promptly the dangers identified through a mine examination or inspection by the department.
- (xiii) Supply inaccurate information to the department.
- (xiv) Fail to:
 - (A) notify the department as required by this act;
 - (B) de-energize electrical power as required by this act; or
 - (C) evacuate the mine when required.

Section 505. Criminal penalties.

(a) Prohibition.—A person commits a felony of the second degree if all of the following apply:

- (1) The person:
 - (i) violates this act, a regulation under this act or any approval, standard or order under this act;
 - (ii) submits false information to the department; or
 - (iii) fails to notify the department as required by this act.
- (2) The action or inaction under paragraph (1):
 - (i) either results in the death of or substantial bodily injury to an individual; or
 - (ii) creates a condition that poses a substantial likelihood of causing death or substantial bodily injury to an individual.

Section 506. Inspections.

(a) Administrative.—An agent or employee of the department may do any of the following:

- (1) Inspect a mine, property, building, premises, place, book or record.

(2) Secure physical evidence. This paragraph includes photography and videography.

(3) Conduct tests. This paragraph includes taking samples.

(b) Warrant.—It shall be sufficient probable cause for a court of competent jurisdiction to issue a search warrant if the department establishes all of the following:

(1) The action under subsection (a) is pursuant to the department's general inspection of mines and investigations at mines.

(2) The agent or employee:

(i) has reason to believe that there has been a violation of this act, a regulation under this act or any approval, standard or order under this act of the department has occurred or may occur; or

(ii) has been refused access or been prevented from taking action under subsection (a).

Section 507. Intervention.

A person having an interest, which is or may be adversely affected, has the right without posting bond to intervene in an action brought by the department or in an appeal before the Environmental Hearing Board under this act.

Section 508. Limitation of action.

(a) Civil and administrative.—Notwithstanding 42 Pa.C.S. Ch. 55 Subch. B (relating to civil actions and proceedings) or any other statutory provision to the contrary:

(1) A civil action under this act shall be commenced within three years from the date the cause of action arises.

(2) An administrative action under this act shall be commenced within three years from the date of the violation.

(b) Criminal.—Notwithstanding 42 Pa.C.S. Ch. 55 Subch. C (relating to criminal proceedings) or any other statutory provision to the contrary, a criminal action under this act shall be commenced within three years from the date the offense is committed.

Section 509. Relation to permit.

The following apply if the department finds that an operator has demonstrated a lack of intent or ability to comply with this act, a regulation under this act or any approval, standard or order under this act:

(1) The department may take any action it deems appropriate regarding the operator's permits, including denial of applications for new, renewed or amended permits and suspension or revocation of existing permits.

(2) Before taking action under paragraph (1), the department shall provide the operator with an opportunity to demonstrate to the department the operator's intent and ability to comply.

Section 510. Certification actions.

(a) Denial.—The department shall not issue a certification if, after investigation and an opportunity for an informal hearing, it finds that the applicant lacks the ability or intent to comply with this act.

(b) Sanctions.—

(1) The department may modify, suspend or revoke a certification under this act if it determines that the holder has done any of the following:

(i) Failed to comply with this act, a regulation under this act or any approval, standard or order under this act.

(ii) Interfered with the safe and lawful operation of any mine.

(iii) Engaged in unlawful conduct under this act.

(2) An appeal to the Environmental Hearing Board shall be treated as a petition for a supersedeas.

(3) An action under this subsection shall be taken only if the monetary penalty under section 503 is inadequate.

(4) This subsection is subject to 2 Pa.C.S. Chs. 5 Subch. A (relating to practice and procedure of Commonwealth agencies) and 7 Subch. A (relating to judicial review of Commonwealth agency action) and the act of July 13, 1988 (P.L.530, No.94), known as the Environmental Hearing Board Act.

(c) Retesting.—A mine official whose certificate has been revoked shall have the right after five years of work experience in an underground bituminous coal mine, two years of which must be in a working section, to be reexamined and, upon receipt of a satisfactory score on the examination, the mine official shall be given another certificate of qualification.

(d) Other remedies.—This section is in addition to any other remedy afforded the department under this act or any other provision of law.

Section 511. Withdrawal of certification.

If a superintendent receives information that any mine foreman, assistant mine foreman, mine examiner or mine electrician neglects duties or is incapacitated, the superintendent shall make a thorough investigation. If the superintendent finds evidence to sustain neglect or incapacity, the superintendent shall suspend the individual and inform the department.

CHAPTER 6

EMERGENCY MEDICAL PERSONNEL

Section 601. Definitions.

The following words and phrases when used in this chapter shall have the meanings given to them in this section unless the context clearly indicates otherwise:

“Emergency medical technician.” 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 an equivalent organization and who has been certified by the Department of Health to provide emergency care.

“Emergency medical technician paramedic.” An individual who has been certified by the Department of Health to provide emergency medical treatment.

Section 602. Emergency medical personnel.

Emergency medical personnel shall be employed at every mine as follows:

(1) At least one emergency medical technician shall be on duty 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 which cannot be reached in 30 minutes by an emergency medical technician. Emergency medical technicians shall be employed at their regular duties at locations convenient for quick response to emergencies and shall have available to them at all times necessary equipment in compliance with Federal regulations.

(2) Telephone services or the equivalent facilities shall be installed which shall provide two-way voice communications between the emergency medical technician at the mine and medical personnel outside or away from the mine who provide emergency medical services on a regular basis.

(3) Operators shall make adequate provisions so that at least one emergency medical technician paramedic, registered nurse, physician or physician assistant is available to provide care at a mine at any time that individuals are engaged in extraction, production or preparation of coal. Emergency medical personnel under this paragraph shall be on call to reach the entrance of the mine within 30 minutes.

Section 603. Regulations for training and certification.

The Department of Health shall promulgate regulations to train and certify emergency medical technicians and emergency medical technician paramedics.

Section 604. First aid training of mine employees.

Each operator shall provide every new employee who has not received first aid training required by the department within the six months prior to the date of employment with the training required by the department. The department shall consult with the Department of Health, MSHA and representatives of miners and representatives of operators in determining the training to be required under this section. Each mine employee shall be provided with five hours of refresher first aid training within each 24-month period of employment. Each employee shall be paid regular wages or overtime pay, if applicable, for all periods of first aid training.

Section 605. Continuing training.

The department, 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 chapter.

Section 606. Regulations.

The board, after consultation with the Department of Health, shall promulgate regulations to implement the operational provisions of this chapter.

Section 607. Certification.

The Department of Health shall promulgate regulations to prescribe procedures necessary to certify emergency medical technicians and emergency medical technician paramedics and consult with the department as may be required under this chapter.

Section 608. Liability.

(a) Physicians.—

(1) Except as set forth in paragraph (2), a physician who in good faith gives instructions to a certified emergency medical technician or emergency medical technician paramedic, a registered nurse or a physician assistant shall not be liable for civil damages as a result of issuing the instructions.

(2) Paragraph (1) does not apply where the actions constitute gross negligence, reckless misconduct or intentional misconduct.

(b) Other medical personnel.—

(1) Except as set forth in paragraph (2), a certified emergency medical technician, emergency medical technician paramedic, registered nurse or physician assistant who in good faith attempts to render emergency care to a sick or injured individual in or about a mine shall not be liable for civil damages as a result of any acts or omissions.

(2) Paragraph (1) does not apply where the actions constitute gross negligence, reckless misconduct or intentional misconduct.

Section 609. Equivalent training.

If the department determines that an operator is presently providing emergency medical care for its employees which is equivalent to or superior to the emergency medical care provided for under this chapter, the department shall make a finding that the operator is in compliance with this chapter.

CHAPTER 7

SAFETY ZONES AND ENTOMBED WORKMEN

Section 701. Establishment.

A safety zone is established beneath and adjacent to every stream, river and natural or artificial body of water in this Commonwealth that is sufficiently large to constitute a hazard to mining in the opinion and discretion of the department. In the case of a stream or river, the safety zone shall extend horizontally 200 feet from the high-water mark of each bank. In the case of any other body of water sufficiently large to, in the department's discretion, constitute a hazard to mining, the safety zone shall extend

horizontally 200 feet from the known perimeter. Each safety zone shall extend downward to the limit of the workable beds.

Section 702. Written authorization.

(a) Requirement.—No mining or removal of minerals shall be permitted within the safety zone unless authorization is specifically granted in advance and in writing by the department.

(b) Procedure.—Authorization shall only be granted upon application of the operator. 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 width of the mine openings, 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) Examinations.—The department shall make periodic examinations to determine the accuracy of plans, maps and drawings submitted to it under the provisions of this section.

Section 703. Pillar recovery.

Pillar recovery may not be undertaken until the pillar plan is approved by the department. Applications for pillar recovery must be accompanied by four copies of a plan, which must include such information as shall be determined by the department. The approval or disapproval of the plan 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 deemed necessary by the department.

Section 704. Proof of rock cover.

(a) Requirement.—Proof of the existence of 35 feet of rock cover must accompany any plan submitted under this chapter.

(b) Sufficiency.—Proof of rock cover is to be ascertained by testing holes drilled on:

(1) intersecting lines forming rectangles or squares where the cover thickness is less than 50 feet; and

(2) on spacing of not more than 35-foot centers.

Section 705. Verification.

Plans and proof of rock cover under this chapter must be signed by a registered professional mining engineer representing the operator and a registered professional mining engineer representing the lessor or the owner.

Section 706. Approval or disapproval of plans.

(a) Approval.—If, after review, the department approves the plan, it shall send copies of the approved plan to the registered professional mining engineer representing the operator and to the registered professional mining engineer representing the lessor or the owner.

(b) Disapproval.—If, after review, the department disapproves the plan, it shall send copies of the disapproval, identifying its reasons for that action, to

the registered professional mining engineer representing the operator and a registered professional mining engineer representing the lessor or the owner. Section 707. Notice.

After approval of the plan by the department, mining or removal of minerals shall not 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 the miner is working within the safety zone. Section 708. Entombed workmen.

If a workman is enclosed, entombed or buried in any coal mine in this Commonwealth, the department, on its own initiative or upon request of a relative of the workman or the department, may petition a court of competent jurisdiction to order recovery of the body and to make a decree that the workman is dead.

CHAPTER 31 MISCELLANEOUS PROVISIONS

Section 3101. Repeals.

(a) Absolute.—The following acts or parts of acts are repealed absolutely:

(1) The act of June 30, 1947 (P.L.1177, No.490), known as The Coal Mine Sealing Act of 1947.

(2) The act of July 17, 1961 (P.L.659, No.339), known as the Pennsylvania Bituminous Coal Mine Act.

(b) Inconsistent.—The following acts and parts of acts are repealed to the extent they apply to bituminous coal mines:

(1) The act of May 9, 1889 (P.L.154, No.171), entitled “An act to provide for the recovery of the bodies of workmen enclosed, buried or entombed in coal mines.”

(2) The act of June 3, 1943 (P.L.848, No.357), entitled “An act providing that every mine foreman, assistant mine foreman and fire boss, under the Bituminous Mining Laws and the Anthracite Mining Laws of the Commonwealth, represents and is an officer of the Commonwealth in the mine in which employed, for the suspension or cancellation of the certificates of such officials as shall hold same, and for the disqualification of such as are uncertificated by the Secretary of Mines after or prior to hearing, for failure or refusal to perform his respective duties; defining the procedure in such hearing and the powers of the Secretary of Mines, with respect thereto, and providing for a review of his decisions by courts of common pleas and the Superior Court; providing for re-examination by the examining board of any person whose certificate has been cancelled, and for reinstatement of such as are uncertificated; and prohibiting the employment by any operator in such capacity of any mine foreman, assistant mine foreman or fire boss not possessing the requisite certificate or whose certificate is suspended or who has been disqualified.”

(3) The act of December 22, 1959 (P.L.1994, No.729), entitled “An act prohibiting mining in certain areas without prior approval by the Department of Mines and Mineral Industries; establishing standards for the approval of plans for mining in such areas; imposing powers and duties on the mine foremen and the Department of Mines and Mineral Industries; and providing penalties.”

(4) The act of July 9, 1976 (P.L.931, No.178), referred to as the Coal Mine Emergency Medical Personnel Law.

Section 3102. Effective date.

This act shall take effect in 180 days.

APPROVED—The 7th day of July, A.D. 2008.

EDWARD G. RENDELL