INDUSTRIAL MINERALS

UNDERGROUND

FOREMAN STUDY GUIDE

pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION

PRESENTED BY
BUREAU OF MINE SAFETY

REVISED 12/2011

Preface

This program is for instructional purposes only and does not constitute an endorsement by Pennsylvania Department of Mine Safety of any specific product. Attendance of this program *does not* constitute certification under state or federal laws or regulations.

Disclaimer

The information and recommendations contained in this program have been compiled from sources believed to be reliable and to represent the best current opinion on the subject. No warranty, guarantee, or representation is made by the Pennsylvania Department of Environmental Protection, Bureau of Mine Safety, as to the absolute correctness or sufficiency of any representation contained in this course and publication, and assumes no responsibility in connection therewith; nor can it be assumed that all acceptable safety measures are contained in this, or that other or additional measures not be observed under particular or exceptional conditions or circumstances.

Section I

Department of Environmental Protection
Bureau of Mine Safety

Reportable Incidents

The superintendent or mine foreman to give immediate notice, by telephone, to the district mine inspector and to the safety committee of the employees upon any occurrence, in or about any bituminous coal mine, of any of the following events:

1. A death of an individual at a mine.
2. An injury to an individual at a mine that has a reasonable potential to cause death and/or serious injuries resulting in the injured being admitted to a hospital excluding sprains and strains.
3. An entrapment of an individual for more than 30 minutes.
4. An unplanned inundation by a liquid or gas.
5. An unplanned ignition or explosion of gas or dust.
6. An unplanned mine fire requiring more than 5 minutes to extinguish.
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; or an unplanned roof or rib fall in active workings that impairs ventilation or impedes passage.
9. A coal or rock outburst that causes withdrawal of miners or which disrupts regular mining activity for more than one hour.
10. An unstable condition at an impoundment, refuse pile, or culm bank which requires emergency action in order to prevent failure, or which causes individuals to evacuate an area; or failure of an impoundment, refuse pile, or culm bank.
11. Accident to hoisting equipment in a shaft or slope that endangers an individual or which interferes with use of the equipment for more than 30 minutes.
12. An event at a mine which causes death or bodily injury to an individual not at the mine at the time the event occurs.
13. Ventilation interruptions requiring withdrawal of personnel from the entire mine.
14. Unplanned connections into abandoned workings or boreholes.

If the mine inspector, inspector supervisor or managers cannot be reached, then the emergency telephone number for the Department of Environmental Protection will be used to notify the Bureau of Mine Safety.

The Bureau of Mine Safety will immediately, after becoming aware of an accident, notify the operator if an investigation will be conducted.

or contact your District Mine Inspector

Section II

PA Department of Labor and Industry
GENERAL SAFETY LAW

Act No. 174, May 18, 1937, P.L. 654,
as amended June 28, 1951 and July 13, 1953

AN ACT

To provide for the safety and to protect the health and morals of persons while employed; prescribing certain regulations and restrictions concerning places where persons are employed, and the equipment, apparatus, materials, devices and machinery used therein; prescribing certain powers and duties of the Department of Labor and Industry relative to the enforcement of this act; and fixing penalties. (Title amended July 13, 1953, P.L.438, No.97)

Compiler's Note: Section 3 of Reorganization Plan No. 2 of 1975 provided that Act 174 is suspended insofar as it conflicts with Reorganization Plan No. 2.
Compiler's Note: Section 16(a)(1) of Act 147 of 1971 provided that Act 174 is repealed insofar as it is inconsistent with Act 147.

Be it enacted, &c., That,

Section 1. Definitions. – The term "establishment" shall mean any room, building or place within this Commonwealth where persons are employed or permitted to work for compensation of any kind to whomever payable, except farms or private dwellings, and shall include those owned or under the control of the Commonwealth, and any political subdivision thereof, as well as school districts.

The term "department" shall mean the Department of Labor and Industry.

Section 2. General Safety and Health Requirements. - (a) All establishments shall be so constructed, equipped, arranged, operated, and conducted as to provide reasonable and adequate protection for the life, limb, health, safety, and morals of all persons employed therein.

(b) All belts, pulleys, gears, chains, sprockets, shafting, and other mechanical power transmission apparatus, stationary engines, electrical equipment, and apparatus shall be properly guarded to protect workers from injury.

(c) All cranes, hoists, steam or electric shovels, plant railroads, and other apparatus or devices used for moving, lifting, lowering, and transporting material shall be designed, constructed, equipped, and operated as to eliminate dangerous conditions.

(d) The point of operation on all saws, planers, jointers or other power driven woodworking machines and all power presses, planers, shapers, and other power driven machine tools, and dangerous parts of any other machines or devices shall be provided with guards of a type approved by the department. Laundry machines, extractors, washers, ironers, and other machines or apparatus shall be provided with guards where, because of accident hazard, they are required by the department.

(e) All toxic and noxious dusts, fumes, vapors, gases, fibers, fogs, mists or other atmospheric impurities, created in connection with any manufacturing process, emitted into or disseminated throughout areas where persons are employed in such quantities as, in the opinion of the department, would injure the health of employes or create other dangerous conditions, shall be removed at the point of origin, or, where this is impractical, personal protective devices shall be provided and worn by persons subjected to such hazards.

(f) All pits, quarries, mines other than coal mines, trenches, excavations, and similar operations shall be properly shored, braced, and otherwise guarded, operated, and conducted as to provide reasonable and adequate protection to workers employed therein. (Functions transferred, June 3, 1975, Reorg. Pl. No.2, P.L.628)

(g) All building construction, demolition, and cleaning, including window cleaning, shall be conducted in a manner as to avoid accident hazards to workers or the public. Scaffolds, ladders, material hoists, window cleaning devices, safety belts, and other equipment used in such operations, shall be designed, manufactured, constructed, and erected as to be safe for the purpose intended. All stairs, open-sided floors, platforms, and runways shall be provided with proper railings and toe-boards.

(h) When employes, due to the nature of employment, are subject to injury from flying particles, falling objects, sharp or rough surfaces or materials, hot, corrosive or poisonous substances, acids or caustics and injurious light rays or harmful radioactive materials, they shall be provided with and shall wear goggles, other head and eye protectors, gloves, leggings, and other personal protective devices. ((h) amended July 13, 1953, P.L.438, No.97)

(i) All plant, scenic or other railroad operations other than those common carrier railroads presently subject to the jurisdiction of the Public Utility Commission shall be maintained and operated in such a manner as to prevent unreasonable or unnecessary hazards to workers or the public. Motive power, rolling stock, and roadbeds shall be designed, manufactured and maintained so as to be safe for its intended purpose and provide maximum safety to the public and the employes involved. ((i) added Oct. 7, 1976, P.L.1107, No.225)

Section 3. Lighting, Heating, Ventilation, and Sanitary Facilities, - All establishments shall be adequately lighted, heated, and ventilated. Proper sanitary facilities shall be provided in sufficient number for the persons employed, and shall include toilet facilities, washing facilities, dressing rooms, and wholesome drinking water of approved quality.

(3 repealed in part Oct. 4, 1978, P.L.909, No.173)

Section 4. Fireworks and Explosives Plants. - Establishments where fireworks or explosives are manufactured or stored shall be located at a safe distance from other buildings, highways or railroads for the protection of the public. Such establishments shall be located, erected, operated, and conducted as to provide adequate and reasonable protection to persons employed therein.

Section 5. Floor Space. - The floor space of workrooms in any establishment shall not be so crowded with machinery as to thereby cause risk to the life or limb of any employe. Proper clear aisle space shall be maintained where necessary for employes to walk between machines, equipment or material. Machinery shall not be placed in any establishment in excess of the sustaining power of the floors and walls thereof.

Section 6. Removal of Guards. - No person shall remove or make ineffective any safeguard, safety appliance or device attached to machinery except for the purpose of immediately making repairs or adjustments, and any person or persons who remove or make ineffective any such safeguard, safety appliance or device for repairs or adjustments shall replace the same immediately upon the completion of such repairs or adjustments.

Section 7. Prohibited Use of Dangerous Machinery. - If any machinery, or any part thereof, is in a dangerous condition or is not properly guarded, the use thereof may be prohibited by the Secretary of Labor and Industry or his authorized representative, and a notice to that effect shall be attached thereto. Such notice shall be removed only by an authorized representative of the department after the machinery is made safe and the required safeguards are provided, and in the meantime such unsafe or dangerous machinery shall not be used.

Section 8. Air Space for Workroom, - The owner, agent, lessee or other person having charge or managerial control of any establishment, shall provide or cause to be provided not less than two hundred and fifty cubic feet of air space for each and every person in every workroom in said establishment where persons are employed.

Section 9, Canneries and Labor Camps. - All canneries for the canning or preserving of fruits, vegetables and meats shall be kept in a clean and sanitary

condition, and all labor camps operated in connection with such canneries and all other labor camps shall be located, constructed, maintained and operated in all respects as to provide for the health, safety, and comfort of occupants of such camps.

(Functions transferred and suspended in part Nov. 30, 1972, Reorg. Pl. No.1, P.L.1750)

Section 10. Safe Practices. - The department may prepare and publish for the use of industry recommendations for safe practices as a guide in the elimination of accidents.

Section 11. Industrial Homework. - Industrial homework shall be conducted in such manner as to insure the safety and health of all persons so employed.

Section 12. Rules and Regulations. - The Department of Labor and Industry shall have the power and its duty shall be to make, alter, amend, and repeal rules and regulations for carrying into effect all the provisions of this act, and applying such provisions to specific conditions.

Section 13. Enforcement; Right of Entry. - The provisions of this act shall be enforced by the Department of Labor and Industry. For the purpose of enforcing the provisions of this act, the Secretary of Labor and Industry, or his duly authorized representative, shall have the power to enter any room, building, or place where labor is employed, and to issue the necessary instructions to the superintendent, manager, or responsible agent of the employer, to correct violations of this act or regulations based on this act.

Section 14. Procedure in Prosecution. - Prosecution for violation of the provisions of this act or the rules and regulations of the department authorized by this act may be instituted by any authorized agent of the department.

Section 15. Penalties. – Any person who shall violate any of the provisions of this act or the rules and regulations of the department as herein provided for, or who shall hinder or delay or interfere with any person charged with the enforcement of this act in the performance of his duty, shall, upon conviction in a summary proceeding, be sentenced for a first offense to pay a fine of not less than twenty-five dollars and not more than one hundred dollars, and in default of the payment of such fine and costs, shall be imprisoned for a term of not more than thirty days, and, upon conviction for a second offense, shall be sentenced to pay a fine of not less than fifty or more than two hundred dollars, and in default of the payment of such fine and costs, shall be imprisoned for a term not exceeding sixty days. Any person guilty of a third offense, under the provisions of this act, shall be guilty of a misdemeanor, and, upon conviction, shall be sentenced to pay a fine of not more than five hundred dollars, or to undergo imprisonment not exceeding six months, or both, at the discretion of the court. Each violation shall be deemed to constitute a separate offense.

All fines collected under this act shall be forwarded to the Department of Labor and Industry who shall transmit the same to the State Treasury, through the Department of Revenue.

Section 16. Repealer. - (a) The following acts are hereby repealed:

The act approved the second day of May, one thousand nine hundred and five, entitled "An act to regulate the employment, in all kinds of industrial establishments, of women and children employed at wages or salary, by regulating the age at which minors can be employed and the mode of certifying the same, and by fixing the hours of labor for women and minors; to provide for the safety of all employees in all industrial establishments, and of men, women and children in schoolhouses, academies, seminaries, colleges, hotels, hospitals, storehouses, office buildings, public halls and places of amusement, in which proper fire-escapes, exits and extinguishers are required; to provide for the health of all employees, and of men, women and children in all such establishments, storehouses and buildings, by proper sanitary appliances; and to provide for the appointment of inspectors, office clerks and others, who, with the chief factory inspector, shall constitute the Department of Factory Inspection; to enforce the same; and providing penalties for
violations of the provisions thereof; fixing the term and salaries of the chief factory inspector and his appointees," and all amendments thereto.

(b) All acts and parts of acts inconsistent with this act are hereby repealed.

DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF DEEP MINE SAFETY

DOCUMENT ID: 580-2200-008

TITLE: **Guidelines for Use of Internal Combustion Motors in Underground Mines Other than Coal**

EFFECTIVE DATE: August 11, 1997

AUTHORITY: Section 25-2(f) of the General Safety Law, 43 P.S. §25-2(f); 34 Pa. Code §§33.117(c) (relating to mine railways and motor haulage); 33.121 (relating to ventilation, general requirement), and 33.122 (relating to ventilating current).

POLICY: This document establishes procedures and criteria for the approval and use of internal combustion motors in underground mines other than coal mines.

PURPOSE: Section 25-2(f) of the General Safety Law requires that all mines other than coal mines be operated in a manner that provides reasonable and adequate protection to workers employed therein. In furtherance of this requirement, the use of internal combustion motors in an underground mine other than a coal mine is prohibited unless otherwise approved by the Department. The following are the standards the Department intends to apply in governing the approval and appropriate use of an internal combustion motor in an underground mine other than a coal mine.

APPLICABILITY: This guidance applies to all Bureau personnel who inspect mines other than coal mines as well as all personnel who approve the use of equipment in these mines. This guidance also applies to all non-coal mine operators in the Commonwealth.

DISCLAIMER: The policy and procedures outlined in this guidance document are intended to supplement existing requirements. Nothing in this policy and procedures shall affect regulatory requirements.

The policy and procedures herein are not an adjudication or regulation. There is no intent on the part of the Department to give this policy the weight or deference that would be accorded an adjudication or regulation. The policy and procedure merely announces the policy that DEP intends to apply in the future for the rules governing the use of internal combustion motors in mines other than coal.

PAGE LENGTH: 3 pages

LOCATION: Volume 9, Tab 13

PROCEDURES:

"General Statement of Policy"

In general, the Department will approve the use of internal combustion motors in an underground mine if the operator has demonstrated that:

Adequate air quality, as defined by §§33.121 and 33.122 will be maintained in all areas of the mine affected by the request.

The equipment powered by internal combustion motors, and the motor itself, will be operated in a safe manner.

"The operator shall be responsible for ensuring that all internal combustion motors (these include company owned, leased, rented, and contractor used equipment) taken in an underground mine, other than a coal mine, will be used in accordance with these guidelines:"

"Requested Information"

The Department requests the operator to submit two (2) copies of the following information either annually on or before April 1 of the calendar year or prior to opening or reopening a mine. The information should be sent to the Pottsville Office of Deep Mine Safety, 5 West Laurel Boulevard, Pottsville, PA 17901. This office will be responsible for the distribution of the information packets.

The requested information is as follows:

An updated ventilation plan that shows the following:

Mine name.

A mine map of the following scales: not greater than 1" = 500' for the overall mine map and not greater than 1" = 200' for typical faces (number of 1:200 maps depends on the number of different ventilating systems employed at the face). The maps should show the following:

Direction and quantity of principal airflows.

Locations of seals used to isolate abandoned workings.

Locations of areas withdrawn from the ventilating system.

Locations of all main, booster, and auxiliary fans not shown in paragraph (d.) of this section.

Locations of air regulators and stoppings and ventilation doors not shown in paragraph (d.) of this section.

Locations of overcasts, undercasts, and other airway crossover devices not shown in paragraph (d.) of this section.

Locations of known oil or gas wells within 1 year of mining advancement.

Locations of known underground mine opening adjacent to the mine.

Locations of permanent underground shops, diesel fuel storage depots, oil fuel storage depots, hoist rooms, compressors, battery charging stations, and explosive storage facilities or magazines. Permanent facilities are those intended to exist for one year or more.

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Significant changes in the ventilation system projected for one year.

Mine fan data for all active main and booster fans including manufacturer's name, type, size, fan speed, blade setting, approximate pressure at present operating point, motor brake horsepower rating, operating characteristics chart, and quantity of air being produced.

Diagrams, descriptions, or sketches showing how ventilation is accomplished in each typical type of working place including the approximate quantity of air provided and typical size and type of auxiliary fans used.

The number and type of internal combustion units used underground, including make and model of unit, type of motor, make and model of motor, brake horsepower rating of motor and MSHA approval number if it exists.

The Department requests the operator to maintain a list of rental, short term use (less than 30 days) or contractor units at the mine site used underground. This should include the same information as requested in Part B, Section 1e. This information does not need to be submitted annually. It must be maintained at the mine site for the inspectors review upon request.

"Safety Guidelines"

"The Department requests that gasoline motors are refueled outside the mine. If a gasoline motor is to be refueled underground, the motor must be shut off. Gasoline may be brought into the mine for purposes of refueling motors provided that the gasoline is transported in an approved and labeled safety can of no more than 5 gallon capacity."

"A fire extinguisher or automatic suppression system should be installed on any mobile internal combustion motored equipment. A fire extinguisher should be located within 100 feet of a stationary piece of equipment that is powered by an internal combustion motor."

"All safety components should be maintained as prescribed and developed by the manufacturer."

4. Mine atmosphere will be maintained with an adequate supply of pure air. Pure air shall mean air containing not less than 19.5% oxygen; not more than 0.5% carbon dioxide; and no harmful quantities of other noxious or poisonous gases (e.g. ceiling limit of 5 ppm nitrogen dioxide, ceiling limit of 200 ppm carbon monoxide or 50 ppm time weighted average).

Gas test by mine officials while persons are in the working section shall be done with approved gas detection instruments. Should concentrations of dangerous gasses be detected, the operator shall take the necessary precautions to ensure that the harmful noxious or poisonous gasses are removed from the work area."

At this time, there is no standard or limit on diesel particulate matter (DPM). If a standard is developed for exposure to DPM, that shall be incorporated into this policy.

5. The Department expects that gasoline powered motors will be shut off when the vehicle is not in motion.

Non-mobile gasoline powered motors should be left to run as minimally as possible.

Gasoline should not be stored underground. Storage for the purposes of this policy means a quantity in excess of the amount that will be used in twenty-four hours. Storage includes the gasoline fuel tanks of mobile and stationary equipment.

Exception to storage rules: When the mine is idle (i.e. during weekends and holidays), the 24 hour requirement will be waved until activity/production is resumed.

"Application Review"

1. After receipt of an application, the Department will review the application to determine whether the information submitted to the Department is adequate enough to enable the Department to make a determination to approve or deny the application This review will be completed within fifteen days of the receipt of the application.

2. If the application does not contain adequate information, the Department will provide a written statement of the specific information that will enable the Department to make a determination to - approve or deny the application.

3. Upon review of an adequate application, a determination will be made whether to grant tentative approval pending a site visit.

4, The Department will notify the applicant, in writing, whether the application has been tentatively approved and the time and date of site visit.

5 The Department will notify the operator, in writing, of approval or denial of the application upon completion of the site visit.

E. "Enforcement Options"

There are a number of enforcement options available to enable the Department to address the improper use of an internal combustion motor in an underground mine other than a coal mine. The options range from a warning letter to an order ceasing operations at the mine. What is appropriate depends on the nature of the violation.

Department of Environmental Protection
Bureau of Deep Mine Safety

DOCUMENT NUMBER: 580-2200-010

TITLE: Underground Storage of Explosives

EFFECTIVE DATE: June 19, 2004

AUTHORITY: Sections 617, 618, and 1402 of the Anthracite Coal Mine Act, 52 P.S. §§70-617,618 and 70-1402; Sections 256 and 702 of the Bituminous Coal Mine Act, 52 P.S. §701-256, and 701-702; and Section 1915-A of the Administrative Code of 1927, 71 P.S.S. §510-15.

POLICY: It is the Department of Environmental Protection's ("DEP") policy that explosives shall be stored at underground mines in a manner that protects workers, the public, and property.

PURPOSE: This guidance specifies how explosives may be stored in underground coal mines for extended periods of time.

APPLICABILITY: This guidance is applicable to all anthracite and bituminous underground coal mine inspectors, engineers, and operators of anthracite and bituminous underground coal mines.

DISCLAIMER: The policies and procedures outlined in this guidance document are intended to supplement existing requirements. Nothing in the policies or procedures shall affect regulatory requirements.

The policies and procedures herein are not an adjudication or a regulation. There is no intent on the part of the Department to give these rules that weight or deference. This document establishes the framework within which DEP will exercise its administrative discretion in the future. DEP reserves the discretion to deviate from this policy statement if circumstances warrant.

PAGE LENGTH: 3 pages

LOCATION: Volume 9, Tab 24

BACKGROUND: High explosives are used in both anthracite and bituminous underground coal mines. At anthracite coal mines, the explosives are to be stored on the surface in magazines, and only enough for one day's work is to be taken underground (see Sections 605 and 617 of the Anthracite Act). In the mine, the explosives are to be stored in wooden magazine boxes. Until the early 70s the practice in the large mines had been to use a special rail magazine car to

bring large quantities of explosives and detonators underground. Wooden day boxes would then be used to distribute the explosives and detonators to the working sections. At the end of the day the explosives car would be withdrawn from the mine and refilled in the morning from the surface magazine. The smaller mines would receive just enough explosives and detonators for a couple of days. These explosives either went immediately underground for that day's use or were stored in wooden magazine boxes on the surface. By the mid 70s there were no longer mines using large amounts of explosives on a daily basis. Operators are reluctant to store larger quantities of explosives on the surface due to the risk of theft, vandalism, and accidental explosion due to vandalism.

In bituminous underground mines, explosives and detonators can be stored for up to 48 hours in a magazine. Again, wooden day boxes are used to take the explosives and detonators to the working sections. There has been a significant reduction in the amount of explosives and detonators used in bituminous coal mines due to the implementation of continuous mining machines and longwall mining systems.

Today, the explosives used in underground coal mines are significantly more stable and harder to accidentally detonate. The percentage of nitroglycerin in dynamite has been significantly reduced. In the past decade, operators have been using an emulsion, which is even more stable then the dynamite.

Section 702 of the Bituminous Act allows an operator to use a new technology or method different from one required under the Bituminous Act if that method or technology affords protections to workers and property that is at least substantially equivalent to the protections afforded by the Act. Identical language is found in Section 1402 of the Anthracite Act. These Acts were adopted in 61 and 65 respectively. Provided the following guidance is followed, storing explosives in an underground mine for extended periods will afford workers and property the same or greater protection than what was intended under the Acts.

Guidance: In general explosives can be stored in an underground mine if:

1. Until needed for use, the explosives and detonators are stored in a magazine of substantial construction with no metal exposed on the inside. Detonators and explosives may be stored in the same magazine if they are separated by a 4-inch wooden partition or its equivalent. Otherwise, detonators and explosives are to be stored in separate
magazines at least 5 feet apart.

2. The magazine is located at least 25 feet from roadways and power wires in a well rockdusted location protected from roof falls. This location shall be at least

300 feet from the faces, and out of the direct line of blasting, outby the last permanent stopping and on intake air.

3. The Department shall approve the design, construction, and placement of a magazine before that magazine is used for storing any explosives or detonators. The Department's approval shall specify the maximum amount of explosives and detonators to be stored in
a magazine, as well as, the maximum amount of time the explosives and detonators can be stored.

4. The operator has an approved program for maintaining the magazine.

5. At the end of each shift the unused explosives and detonators are returned to the magazine.

6. The operator shall maintain a record of explosives taken from and placed in the magazine. Any other alternative procedures for storing explosives and detonators in an underground mine are to be submitted to the Department in accordance with TGD No. 580-2200-004, Procedures for Processing Requests to adopt new items or methods under Section 702 and 1402 of the Pennsylvania Mining Laws.

Department of Environmental Protection
Bureau of Mine Safety

DOCUMENT NUMBER: 580-2200-011

TITLE: Sinking of Shafts and Slopes for Underground Mines

EFFECTIVE DATE: October 1, 2005

AUTHORITY: The Pennsylvania Anthracite and Bituminous Coal Mine Acts ("Acts") (52 P.S. §§ 70-101 *et. seq.* and §§ 701-101 *et. seq.)*; Section 2(f) of the General Safety Law (43 P.S. 25-2(f); The Coal and Non-Coal Surface Mining Conservation and Reclamation Acts ("SMCRA"), (52 P.S. §§ 1396.1 *et. seq.* and §§ 3301 *et. seq.*) Sections 1915-A and 1917-A of the Administrative Code of 1977 (§§ 510-15 and 17); and 25 Pa. Code Chapters 87, 88, 89 207 and 210.

POLICY: It is the policy of the Department to administer and enforce the mine safety laws in a manner that ensures the safety of persons working in or about the mine.

PURPOSE: The purpose of this technical guidance is to identify the safety requirements applicable to the development of shaft and slope entries to underground mines and to provide the operator the ability to implement MSHA's requirements for shaft and slope construction in lieu of those set forth in the Acts.

APPLICABILITY: This Technical Guidance is applicable to all employees of the Department's Bureau of Mine Safety responsible for inspecting underground mines and all underground mining operations.

DISCLAIMER: The policies and procedures outlined in this guidance document are intended to supplement existing requirements. Nothing in the policies or procedures shall affect regulatory requirements.

The policies and procedures herein are not an adjudication or a regulation. There is no intent on the part of the Department (DEP) to give these rules that weight or deference. This document establishes the framework within which DEP will exercise its administrative discretion in the future. DEP reserves the discretion to deviate from this policy statement if circumstances warrant.

PAGE LENGTH: 2 pages

LOCATION: Volume 9 Tab 25

GUIDANCE:

1. **Underground Coal Mines**

The sinking of shafts and the driving of slope entries for underground coal mines, either in operation or under development, is subject to the requirements of the Pennsylvania Anthracite or Bituminous Coal Mine Acts ("Acts"). The safety standards for persons involved in the construction of anthracite mine shafts and slopes are contained in §§ 70-725 –70-731. The safety standards for persons involved in the construction of bituminous mine shafts are contained in § 701-290(l). The other provisions of the Acts are applicable to address issues not addressed by these sections, *e.g.* use of permissible explosives.

The Mine Safety and Health Administration's ("MSHA") regulations concerning the construction of entries from the surface to the coal seam are found in 30 CFR Part 77 Subpart T (Underground Coal Mines-Health and Safety Standards-Slope and Shaft Sinking). In the Department's opinion, these standards afford protections to workers that are substantially equivalent to or greater then those afforded by the requirements of the Acts. Therefore, pursuant to Section 1402 of the Anthracite Act and Section 702 of the Bituminous Act and to promote consistency, an operator may implement the MSHA standards in lieu of the requirements in the Acts. The operator must request, in writing, the Department's authorization to use the MSHA subpart T standards in lieu of the Acts Requirements. This authorization will be granted if the operator agrees to submit to the Department, all requests or plans that must be submitted and approved by MSHA under Subpart T.

2. **Underground Industrial Mineral Mines**

The Department's safety standards for the development and operation of underground industrial mineral mines is established by Section 2(f) of the General Safety Law and its implementing regulations, found at 25 Pa. Code Chapter 207. These regulations, *inter alia*, incorporate by reference the MSHA regulations found at 30 CFR Part 57 (relating to health and safety standards for underground metal and nonmetal mines). Therefore, the Department's regulations already require operators of underground industrial mineral mines to follow the MSHA regulations for the construction of entries to underground metal and nonmetal mines.

3. **Qualifications**

Shaft and Slope Construction Supervisor -The person immediately responsible for supervising persons engaged in the sinking of a shaft or slope entry is responsible for ensuring compliance with applicable safety requirements and the safety of persons engaged in this activity. At a minimum, the Department expects this supervisor to be the person who: ensures the adequacy of the entry's ventilation, performs all required checks for methane and oxygen,

checks the walls of the entry for loose rock after a blast, and ensures the adequacy of the entry's ground control. In general the Department will consider a person competent, by issuing a certificate of competency, to supervise persons engaged in the sinking of shafts or slopes if that person:

(a) Is at least 21 years of age.

(b) Has at least 2 years of practical experience in the sinking of slopes and shafts or has 1 year of practical experience in the sinking of slopes and shafts and either possess:

(i) A Bachelor of Science Degree in mining engineering.

(ii) A certificate of qualification to be a coal mine foreman or assistant coal mine foreman issued pursuant to the Acts.

(iii) A certificate of qualification to be an industrial mineral underground mine foreman.

(iv) An acceptable certificate of qualification issued by another state.

(c) Has been trained in the detection of oxygen and explosive gases, as well as, the use and mechanics of all gas detection devices.

(D) Has demonstrated the ability to ensure the safety of persons engaged in the sinking of slopes and shafts by successfully answering at least 80 percent of the questions in an examination administered by the Department.

Blaster – The Department will continue to require persons performing blasting activity in connection with the construction of an entry from the surface to the coal seam or mineral deposit to be mined to possess a license issued pursuant to Chapter 210. For Industrial Mineral Mines the authority for this requirement comes from § 207.217 (relating to blasting activity) and 210.12 (relating to scope)). For coal mines the authority for this requirement flows from the fact that the development of an entry from the surface to the seam to be mined is also surface mining activity subject to the requirements of the SMCRA and its implementing regulations found at §§ 87.124(d) (relating to use of explosives: general requirements) and 88.134(c) (relating to blasting: general requirements).

Note: The construction of a mine opening from the surface to the coal seem or mineral strata to be mined is also surface mining activity subject to the SMCRA or the NCSMCRA and their implementing regulations. The regulations concerning the use of explosives are found at § 77.453 and § 77.561-565 (relating to use of explosives) for noncoal mines; § 87.64 (relating to blasting

plan), and §§ 87.124–129 (relating to the use of explosives) for bituminous mines, and § 88.45(relating to blasting) and §§88.134-137 (relating to blasting) for anthracite coalmines. These regulations are for the protection of persons and property outside the permit area as well as persons at the mine site. They address issues such as peak particle velocity, air blasts, preblast surveys, scheduling of blasts, and measures to be taken to protect traffic on nearby highways. The Department is developing a proposed rulemaking package which will, among other things, clarify that these regulations apply to the use of explosives in connection with the development of a mine opening, as well as, increased flexibility in the scheduling of the blasts so that the construction of a mine opening can occur round the clock.

Section III

CHAPTER 207. NONCOAL UNDERGROUND MINES

Subchap. Sec.

Authority

The provisions of this Chapter 207 issued under sections 2(f) and 12 of the act of May 18, 1937 (P. L. 654, No. 174)(43 P. S. § § 25-2(f) and 25-12); and sections 1917-A and 1920-A of the Administrative Code of 1929 (71 P. S. § § 510-17, and 510-20, unless otherwise noted.

Source

The provisions of this Chapter 207 adopted December 1, 1972,2 Pa.B. 2262, unless otherwise noted.

Subchapter A. GENERAL

Sec.

§ 207.1. [Reserved].

Source

The provisions of this § 207.1 adopted December 1, 1972, 2 Pa.B. 2262; reserved April 9, 2004, effective April 10, 2004, 34 Pa.B. 2041. Immediately preceeding text appears at serial page (234646).

§ 207.2. [Reserved].

Source

The provisions of this § 207.2 adopted December 1, 1972, 2 Pa.B. 2262; amended December 1, 1972, 2 Pa.B. 2262; reserved April 9, 2004, April 10,

2004, 34 Pa.B. 2041. Immediately preceding text appears at serial page (234646).

§ § 207.11—207.22. [Reserved].

Source

The provisions of these § § 207.11—207.22 adopted December 1, 1972, 2 Pa.B. 2262; reserved April 9, 2004, effective April 10, 2004, 34 Pa.B. 2041. Immediately preceeding text appears at serial pages (234647) to (234650).

§ § 207.31—207.46. [Reserved].

Source

The provisions of these § § 207.31—207.46 adopted December 1, 1972, 2 Pa.B. 2262; reserved April 9, 2004, effective April 10, 2004, 34 Pa.B. 2041. Immediately preceeding text appears at serial pages (234650) to (234655).

§ 207.101. Scope.

This chapter applies to underground noncoal mines and mined-out underground noncoal mines used to house other businesses in this Commonwealth. The purpose of this chapter is for the protection of life, the promotion of health and safety and the prevention of accidents.

Source

The provisions of this § 207.101 adopted April 9, 2004, effective April 10, 2004, 34 Pa.B. 2041.

§ 207.102. Definitions.

The following words and terms, when used in this chapter, have the following meanings, unless the context clearly indicates otherwise:

Developed facility—The portion of a mined-out underground noncoal mine developed or being developed for storage, manufacturing or other activities requiring a person to enter the mined-out area. The term includes all roads and means of entering and leaving the mined-out area of the underground noncoal mine.

Mined-out—A portion of the noncoal underground mine where no further mining is planned.

Noncoal underground mine—

(i) Lands, excavations, underground passageways, shafts, slopes, tunnels and workings, structures, facilities, equipment, machines, tools or other property including impoundments, retention dams and tailings ponds, on the surface or underground, used in, or to be used in, or resulting from, the work of extracting

metals or minerals other than coal from their natural deposits in nonliquid form, or if in liquid form, with workers underground, or used in, or to be used in, the milling of the metals or minerals, or the work of preparing metals or minerals other than coal, and includes custom preparation facilities.

(ii) Private ways and roads appurtenant to the areas set forth in subparagraph (i).

Person—A natural person, partnership, association or corporation or any agency, instrumentality or entity of Federal or State government. When used in any clause prescribing and imposing a penalty, or imposing a fine or imprisonment, or both, the term "person" does not exclude the members of an association and the directors, officers or agents of a corporation.

Source

The provisions of this § 207.102 adopted April 9, 2004, effective April 10, 2004, 34 Pa.B. 2041.

§ 207.103. Responsible party.

The person who is the owner or operator of a noncoal underground mine or developed facility shall ensure that the noncoal underground mine or developed facility is constructed and operated in accordance with this chapter. A subcontractor who conducts all or part of the operation shall be jointly and severally responsible with the owner or operator.

Source

The provisions of this § 207.103 adopted April 9, 2004, effective April 10, 2004, 34 Pa.B. 2041.

§ 207.104. Enforcement.

(a) The Department has the authority to issue orders necessary to ensure compliance with section 2(f) of the act of May 18, 1937 (P. L. 654, No. 174) (43 P. S. § 25-2(f)), known as the General Safety Law, and this chapter. This authority includes orders:

(1) Revoking or suspending a certificate of qualification to be a foreman.

(2) Ceasing or suspending the operation of a noncoal underground mine or developed facility.

(3) Requiring the abatement of an unsafe condition or practice.

(b) Except for orders abating a condition that is an imminent hazard or ceasing, in whole or in part, the operation of a noncoal underground mine or developed facility due to the existence of an imminent hazard, the Department will not issue an order abating a condition or correcting a violation of this chapter until the owner or operator has had an opportunity to meet with the Department to discuss

the matter and the owner or operator has had a reasonable opportunity to abate the condition or correct the violation.

The provisions of this § 207.104 adopted April 9, 2004, effective April 10, 2004, 34 Pa.B. 2041.

Subchapter B. NONCOAL UNDERGROUND MINES

GENERAL

Sec.

PERFORMANCE STANDARDS

Source

The provisions of this Subchapter B adopted April 9, 2004, effective April 10, 2004, 34 Pa.B. 2041, unless otherwise noted.

GENERAL

§ 207.201. Applicability.

This subchapter applies to the development, construction and operation of noncoal underground mines in this Commonwealth.

§ 207.202. Definitions.

The following words and terms, when used in this subchapter, have the following meanings, unless the context clearly indicates otherwise:

MSHA—The United States Department of Labor, Mine Safety and Health Administration, its employees and its officers.

Magazine—A structure used for the storage of explosives.

PERFORMANCE STANDARDS

§ 207.211. Safety requirements.

(a) The provisions of 30 CFR Part 57 (relating to safety and health standards—underground metal and nonmetal mines) are incorporated herein by reference.

(b) Alternative safety and health standards for underground metal and nonmetal mines, established by MSHA under section 101(c) of the Federal Mine Safety and Health Act of 1977 (30 U.S.C.A. § 811(c)) and 30 CFR Part 44 (relating to rules of practice for petitions for modification of mandatory safety standards), are incorporated herein by reference.

(c) The provisions of 30 CFR Part 57 requiring the submission of a map, plan, notification, report, program description or other materials to MSHA are amended to require the same submission to the Department. A copy of the documents required by 30 CFR Part 57 to be submitted to MSHA and any other material requested by MSHA under 30 CFR Part 57 shall also be submitted to the Department's Anthracite and Industrial Mineral Mine Safety Division at 5 West Laurel Blvd., Pottsville, Pennsylvania 17901.

(d) An owner or operator of a noncoal underground mine maintaining a magazine located on the surface shall comply with the magazine licensing requirements of Chapter 211 (relating to storage, handling and use of explosives).

§ 207.212. Employment of foreman.

The owner or operator of an underground noncoal mine shall employ a foreman who possesses the Department's certificate of qualification to be a foreman.

§ 207.213. Duties of foreman.

The foreman shall have full charge of the inside portions of the noncoal underground mine and the persons employed therein. The foreman's duty shall be to ensure compliance with the Commonwealth's mine safety laws and the regulations promulgated thereunder, as well as to secure and promote the health and safety of persons employed in the noncoal underground mine.

§ 207.214. Certificate of qualification application requirements.

To be eligible to apply for a certificate of qualification, the individual shall:

(1) Be at least 21 years of age.

(2) Have at least 2 years of practical experience as a noncoal underground miner or have 1 year of practical experience as a noncoal underground miner and either possess a Bachelor of Science Degree in mining engineering, possess a certificate of qualification under section 205 of the Pennsylvania Anthracite Coal Mine Act (52 P. S. § 70-205) or section 206 of the Pennsylvania Bituminous Coal Mine Act (52 P. S. § 701-206) or possess an acceptable certificate of qualification issued by another state.

§ 207.215. Standards for issuing certificates of qualification.

(a) The Department will only issue certificates of qualification to be a foreman to applicants who have demonstrated the ability to ensure the safety of persons and the inside portions of a noncoal underground mine under their supervision. Applicants make this demonstration by correctly answering at least 80% of the Department's written examination covering applicable mine safety laws and regulations of the Commonwealth.

The Department may refuse to issue to an applicant a certificate of qualification when the applicant has demonstrated an inability or unwillingness to comply with the mine safety laws and regulations of the Commonwealth or the mine safety laws or regulations administered by MSHA.

§ 207.216. Examining committee.

(a) The Department will appoint a committee consisting of a noncoal underground mine foreman and a representative of the Department to prepare the initial draft of the examination to be given to applicants for the mine foreman's certificate of qualification. A bank of questions shall be developed by the committee. The Department will assemble the examination from this bank of questions.

(b) This committee shall review and score the results of the examinations given to applicants for the foreman's certificate of qualification. These results shall be transmitted to the Department for issuance of the certificate.

§ 207.217. Blasting activity.

The storage, handling and use of explosives at a noncoal underground mine shall be under the supervision and control of a person licensed as a blaster under Chapter 210 (relating to blasters' licenses).

Subchapter C. MINED-OUT AREAS

GENERAL PROVISIONS

Sec.

SPECIFICATIONS

Source

The provisions of this Subchapter C adopted April 9, 2004, effective April 10, 2004, 34 Pa.B. 2041, unless otherwise noted.

GENERAL PROVISIONS

§ 207.301. Applicability.

This subchapter applies to the use of mined-out underground noncoal mines in this Commonwealth. The activities covered by this subchapter include storage, manufacturing or other activities requiring a person to enter the mined-out area.

§ 207.302. Definitions.

The following words and terms, when used in this subchapter, have the following meanings, unless the context clearly indicates otherwise:

Outside air—Air moving through the mined-out passageways after entering them through the main or accessory portals by mechanical or natural forces.

Pure air—Air containing not less than 19.5% oxygen, not more than 0.5% carbon dioxide and no harmful quantities of other noxious or poisonous gases, dust, soot or particulates.

Safety container—A container not over 5 gallons capacity, having a spring closing lid and spout cover.

§ 207.303. Approvals.

(a) A person may not operate a business in a mined-out area unless that mined-out area is part of a developed facility, which has been approved by the Department in writing and is constructed and operated in accordance with this subchapter.

(b) The owner or operator of the developed facility shall submit to the Department a written request which:

(1) Identifies the owner of the developed facility.

(2) Identifies the location of the developed facility.

(3) Describes the purpose of the developed facility.

Identifies a responsible person at the developed facility.

Contains a map or drawings depicting the developed facility, including the following:

(i) The information required by § 207.314(b) (relating to ventilation) if the developed facility will be using mechanical ventilation.

(ii) The information required by § 207.318(b) (relating to storage of flammable liquids) if more than 5 gallons of flammable liquid are to be stored in the developed facility.

(c) One or more inspections of the developed facility may be part of the Department's review of the operator's request.

(d) The Department's approval may include conditions necessary to ensure compliance with section 2(f) of the act of May 18, 1937 (P. L. 654, No. 174) (43 P. S. § 25-2(f)), known as the General Safety Law, the requirements of this subchapter and protect the public health, safety and welfare.

SPECIFICATIONS

§ 207.311. Roof areas.

The owner or operator of a developed facility shall ensure that the developed facility's roof shall be scaled, bolted or otherwise supported.

§ 207.312. Lighting.

(a) *Permanent.* The owner or operator of a developed facility shall ensure that a permanent lighting system is installed in the developed facility to provide adequate lighting for the activities to be conducted in the developed facility. An adequate permanent lighting system is one constructed in accordance with a Nationally recognized safety code such as the *National Electric Code* established by the United States of America Standards Institute.

(b) *Emergency.* The owner or operator of a developed facility shall ensure that a person is not allowed to work in a developed facility unless either an emergency lighting system meeting the requirements of the Department has been installed in that area or each worker is provided with an approved personal lamp.

(1) The emergency lighting system shall be powered by an emergency generator. The emergency lighting system shall also be constructed in accordance with a Nationally recognized safety code such as the *National Electric Code* established by the United States of America Standards Institute.

(2) Cap lamps constructed and maintained in accordance with 30 CFR 19.5 (relating to general requirements for approval) are approved as personal lamps. The Department may approve the use of other types of personal lamps provided the other lamps are as safe as a personal cap lamp constructed and operated in accordance with 30 CFR 19.5.

§ 207.313. Entrances and exits.

The owner or operator of a developed facility shall ensure that two separate passages, connecting each area of the developed facility to the surface, shall be provided for personnel use and shall be maintained in a safe, passable condition at all times.

§ 207.314. Ventilation.

(a) *General requirement.* The owner or operator of a developed facility shall ensure that an adequate supply of pure air is provided and maintained in the developed facility as provided in subsection (c). If the Department or the operator determines it is necessary to install mechanical means of ventilation, these

mechanical means for providing pure air shall be approved by the Department in writing before the mechanical ventilation system is operated.

(b) *Ventilation system requirements.* The owner or operator of the developed facility shall submit to the Department drawings depicting the proposed ventilation system. One or more inspections of the developed facility may be part of the Department's review of the proposed mechanical ventilation system. Any Department approval may include conditions necessary to ensure the ventilation system is providing pure air to all portions of the developed facility.

(c) *Quantity of air.* A minimum of 20 cubic feet of outside air shall be supplied to every occupied or enclosed space in a developed area, per minute, per person present in that area.

Cross References

This section cited in 25 Pa. Code § 207.303 (relating to approvals).

§ 207.315. Closing underground sections.

If it becomes necessary to permanently close or enclose a section or portion of the developed facility, the owner or operator of the developed facility shall ensure that noncombustible material is used to permanently close or enclose that section or portion of the developed facility.

§ 207.316. Inspections.

The owner or operator of a developed facility shall ensure that inspections are made at the following times, and defective conditions that are discovered shall be corrected:

(1) *Monthly.* The ceiling, pier and walls shall be inspected monthly for new cracks. The entrances, shafts, slopes, drifts and roadways leading to them, and the doors or gates shall be inspected monthly to insure they are in safe, usable condition.

(2) *Biweekly.* Emergency lighting systems and approved personal lamps shall be tested biweekly to assure they are in operating condition. Charge, fluid, terminals and visual conditions of batteries shall be checked.

(3) *Weekly.* The ventilating system shall be inspected weekly to ensure that motors and controls are in operating condition.

§ 207.317. Record of inspection.

The owner or operator of the developed facility shall ensure that daily logs containing the findings of inspections and the repairs and corrective action taken are maintained and kept on file at the developed facility's office. These logs shall be available for inspection by the Department at any time during working hours. Each day's log shall be dated and signed by a person designated by the owner or operator to be responsible for the day-to-day operation of the developed facility. Corrections or orders required by the Department representative shall be in writing and shall become a part of the log.

§ 207.318. Storage of flammable liquids.

(a) The owner or operator of the developed facility shall ensure that flammable liquids are stored in a safety container unless otherwise approved in writing by the Department. To request the Department's approval, the owner or operator shall submit to the Department a photograph, drawing or sketch of the container and an explanation as to why this alternative container is safe for storing flammable liquids. Department approvals may include conditions necessary to ensure that the container will safely store flammable liquids.

(b) The owner or operator of a developed facility shall ensure that flammable liquids in excess of 5 gallons are not stored in the developed facility unless otherwise approved in writing by the Department.

(c) The request for storing more than 5 gallons of flammable liquid shall include a drawing depicting the location, size and nature of storage. The request shall also state the reason it is necessary to store more than 5 gallons of flammable liquids and describe the materials which will be used to construct the container, as well as measures to be taken to detect, prevent or respond to a fire or a spill.

Cross References

This section cited in 25 Pa. Code § 207.303 (relating to approvals).

§ 207.319. Check in/check-out system.

The owner or operator of the developed facility shall ensure that there is a check-in/check-out system, which will inform personnel on the surface of the mine as to who is currently in the developed facility.

Commonwealth of Pennsylvania, Pennsylvania Code
Title 25. Environmental Protection

Section IV

CHAPTER 210. BLASTERS' LICENSES

Sec.

Authority

The provisions of this Chapter 210 issued under sections 3 and 7 of the act of July 1, 1937 (P. L. 2681, No. 537) (73 P. S. § § 157 and 161); section 3 of the act of July 10, 1957 (P. L. 685, No. 362) (73 P. S. § § 157, 161 and 166); Reorganization Plan No. 8 of 1981 (71 P. S. § 751-35); section 2(f) of the act of May 18, 1937 (43 P. S. § 25-2(f)); Reorganization Plan No. 2 of 1975 (71 P. S. § 751-22); section 4(b) of the Surface Mining Conservation and Reclamation Act (52 P. S. § 1396.4(b)); section 11(e) of the Noncoal Surface Mining Conservation and Reclamation Act (52 P. S. § 3311(e)); and sections 1917-A and 1920-A(b) of The Administrative Code of 1929 (71 P. S. § § 510-17 and 510-20(b)), unless otherwise noted.

Source

The provisions of this Chapter 210 adopted January 26, 1973, effective January 27, 1973, 3 Pa. 183, unless otherwise noted.

Cross References

This chapter cited in 25 Pa. Code § 77.561 (relating to general requirements); 25 Pa. Code § 87.64 (relating to blasting plan); 25 Pa. Code § 87.124 (relating to use of explosives: general requirements); 25 Pa. Code § 88.134 (relating to blasting: general requirements); 25 Pa. Code § 207.17 (relating to blasting activity); and 25 Pa. Code § 211.101 (relating to definitions).

§ § 210.1—210.3. [Reserved].

Source

The provisions of these § § 210.1—210.3 adopted January 26, 1973, effective January 27, 1973, 3 Pa.B. 183; amended November 7, 1980, effective November 8, 1980, 10 Pa.B. 4294; reserved July 13, 2001, effective July 14, 2001, 31 Pa.B. 3751. Immediately preceding text appears at serial pages (243459) to (243462).

§ § 210.4—210.6. [Reserved].

Source

The provisions of this § 210.4 adopted January 26, 1973, effective January 27, 1973, 3 Pa.B. 183; reserved July 13, 2001, effective July 14, 2001, 31 Pa.B. 3751. Immediately preceding text appears at serial pages (243462) to (243463).

§ 210.11. Definitions.

The following words and terms, when used in this chapter, have the following meanings, unless the context clearly indicates otherwise:

Blaster—A person who is licensed by the Department under this chapter to detonate explosives and supervise blasting activities.

Blaster learner—An individual who is learning to be a blaster and who participates in blasting activities under the direct supervision of a blaster.

Blaster's license—A license to detonate explosives and supervise blasting activities issued by the Department under this chapter.

Demolition and demolition blasting—The act of wrecking or demolishing a structure with explosives.

Person—A natural person.

Source

The provisions of this § 210.11 adopted July 13, 2001, effective July 14, 2001, 31 Pa.

§ 210.12. Scope.

This chapter applies to persons engaging in the detonation of explosives within this Commonwealth. This chapter does not apply to persons authorized to detonate explosives or to supervise blasting activities under:

(1) The Pennsylvania Anthracite Coal Mine Act (52 P. S. § § 70.101—70.1405).

(2) The Pennsylvania Bituminous Coal Mine Act (52 P. S. § § 701-101—701-706).

Source

The provisions of this § 210.12 adopted July 13, 2001, effective July 14, 2001, 31 Pa.B. 3751.

§ 210.13. General.

A person may not detonate explosives or supervise blasting activities unless the person has obtained a blaster's license.

The Department may exempt certain individuals from needing a blaster's license if the person is detonating extremely small amounts of explosives for industrial or research purposes. The Department will consider a written request for an exemption from the person seeking the exemption.

(c) Upon request, a blaster shall exhibit a blaster's license to the following:

(1) An authorized representative of the Department.

(2) The blaster's employer or an authorized representative of the employer.

(3) A police officer acting in the line of duty.

A blaster's license is not transferable.

Source

The provisions of this § 210.13 adopted July 13, 2001, effective July 14, 2001, 31 Pa.B. 3751.

§ 210.14. Eligibility requirements.

(a) To be eligible for a blaster's license, a person shall:

(1) Be 21 years of age or older.

(2) Have at least 1 year of experience as a blaster learner in preparing blasts in the classification for which a license is being sought.

(3) Have taken the Department's class on explosives. It is not necessary for a blaster to retake the class when adding an additional classification to a license.

(4) Have successfully passed the Department's examination for a blaster's license.

The Department will not issue or renew a license if the applicant, as indicated by past or continuing violations, has demonstrated a lack of ability or intention to comply with the Department's regulations concerning blasting activities.

Source

The provisions of this § 210.14 adopted July 13, 2001, effective July 14, 2001, 31 Pa.B. 3751.

Cross References

This section cited in 25 Pa. Code § 210.17 (relating to issuance and renewal of licenses).

§ 210.15. License application.

The license application shall be on forms provided by the Department and be accompanied by a check for $50 payable to the Commonwealth of Pennsylvania. The complete application shall be submitted to the Department at least 2 weeks prior to the examination.

(b) The license application shall include a signed notarized statement from a person who has direct knowledge of the applicant's expertise, such as the blaster who supervised the applicant, or the applicant's employer. The statement shall:

(1) Describe the applicant's experience in blasting. In particular, the statement shall describe in detail how the applicant assisted in the preparation of the blasts and for how long.

(2) State whether the applicant is competent to prepare and detonate blasts in the classification for which the license is being sought.

Source

The provisions of this § 210.15 adopted July 13, 2001, effective July 14, 2001, 31 Pa.B. 3751.

Cross References

This section cited in 25 Pa. Code § 210.17 (relating to issuance and renewal of licenses).

§ 210.16. Examinations.

(a) The Department will conduct examinations for specific types of blasting, as specified in § 210.17(a) (relating to issuance and renewal of licenses).

(b) The Department will schedule and conduct examinations as needed.

(c) An applicant failing to appear for a scheduled examination forfeits the application fee unless the applicant provides written notice to the Department prior to the examination date or submits a valid medical excuse in writing.

(d) Refund of the fee or admittance to a subsequent examination without a reapplication fee will be at the discretion of the Department.

Source

The provisions of this § 210.16 adopted July 13, 2001, effective July 14, 2001, 31 Pa.B. 3751.

Cross References

This section cited in 25 Pa. Code § 210.17 (relating to issuance and renewal of licenses).

§ 210.17. Issuance and renewal of licenses.

(a) A blaster's license is issued for a specific classification of blasting activities. The classifications will be determined by the Department and may include general blasting (which includes all classifications except demolition and underground noncoal mining), trenching and construction, seismic and pole line work, well perforation, surface mining, underground noncoal mining, industrial, limited and demolition.

(b) A person may apply to amend the blaster's license for other classifications by meeting the requirements of § 210.14 (relating to eligibility requirements) and by submitting a complete application.

(c) A blaster's license will be issued for 3 years.

(d) A blaster's license is renewable if the blaster can demonstrate that he has had 8 hours of continuing education in Department-approved courses related to blasting and safety within the 3 year period.

(e) The blaster's license may be renewed for a 3-year term by submitting a renewal application to the Department and a check for $30, payable to the Commonwealth of Pennsylvania.

(f) A person who intends to be a blaster and whose blaster's license was not renewed within 1 year of its expiration date shall apply for a new license under § § 210.14—210.16 (relating to eligibility requirements; license application; and examinations).

(g) A person who conducted demolition blasting under a general blaster's license may conduct demolition blasting after July 14, 2001, by applying for and receiving a demolition blaster's license. The Department may waive the examination required by § 210.14 and the application fee if the blaster demonstrates at least 3 years of experience in demolition blasting. The demonstration shall be in the form of a notarized statement from the blaster's employer that describes the blaster's experience.

Source

The provisions of this § 210.17 adopted July 13, 2001, effective July 14, 2001, 31 Pa.B. 3751.

Cross References

This section cited in 25 Pa. Code § 210.14 (relating to eligibility requirements).

§ 210.18. Recognition of out-of-State blaster's license.

(a) The Department may license a person who holds a blaster's license or its equivalent in another state. The Department may issue the license if, in the opinion of the Department, that state's licensing program provides training on the storage, handling and use of explosives and an examination that is equivalent to the requirements of this chapter.

(b) A request for a license under this section shall be made in writing. Copies of the other state's explosives training and examination material and proof that the applicant holds a license in the other state shall be provided to the Department in order to make a proper evaluation.

Source

The provisions of this § 210.18 adopted July 13, 2001, effective July 14, 2001, 31 Pa.B. 3751.

§ 210.19. Suspension, modification and revocation.

The Department may issue orders suspending, modifying or revoking a blaster's license. Before an order is issued, the Department will give the blaster an opportunity for an informal meeting to discuss the facts and issues that form the basis of the Department's determination to suspend, modify or revoke the license. The Department may suspend, modify or revoke a blaster's license for violations of this chapter and Chapter 211 (relating to storage, handling and use of explosives in surface applications).

Source

The provisions of this § 210.19 adopted July 13, 2001, effective July 14, 2001, 31 Pa.B. 3751.

Section V

CHAPTER 211. STORAGE, HANDLING AND USE OF EXPLOSIVES

Authority

The provisions of this Chapter 211 issued under sections 1901-A and 1920-A of The Administrative Code of 1929 (71 P. S. § § 510-1 and 510-20); amended under sections 3 and 7 of the act of July 1, 1937 (P. L. 2681, No. 537) (73 P. S. § § 157 and 161); section 3 of the act of July 10, 1957 (P. L. 685, No. 362) (73 P. S. § § 157, 161 and 166); Reorganization Plan No. 8 of 1981 (71 P. S. § 751-35); section 2(f) of the act of May 18, 1937 (43 P. S. § 25-2(f)); Reorganization Plan No. 2 of 1975 (71 P. S. § 751-22); section 4(b) of the Surface Mining Conservation and Reclamation Act (52 P. S. § 1396.4(b)); section 11(e) of the Noncoal Surface Mining Conservation and Reclamation Act (52 P. S. § 3311(e)); and sections 1917-A and 1920-A(b) of The Administrative Code of 1929 (71 P. S. § § 510-17 and 510-20(b)), unless otherwise noted.

Source

The provisions of this Chapter 211 adopted June 14, 1972, effective June 15, 1972, 2 Pa.B. 1067, unless otherwise noted.

Cross References

This chapter cited in 25 Pa. Code § 77.561 (relating to general requirements); 25 Pa. Code § 87.124 (relating to use of explosives: general requirements); 25 Pa. Code § 88.134 (relating to blasting: general requirements); 25 Pa. Code § 207.211 (relating to safety requirements); and 25 Pa. Code § 210.19 (relating to suspension, modification and revocation).

Subchapter A. GENERAL PROVISIONS

Sec.

§ § 211.1 and 211.2. [Reserved].

Source

The provisions of these § § 211.1 and 211.2 reserved July 13, 2001, effective July 14, 2001, 31 Pa.B. 3751. Immediately preceding text appears at serial pages (243466) to (243469).

§ 211.31. [Reserved].

Source

The provisions of this § 211.31 amended November 7, 1980, effective November 8, 1980, 10 Pa.B. 4294; reserved July 13, 2001, effective July 14, 2001, 31 Pa.B. 3751. Immediately preceding text appears at serial page (243469).

§ § 211.32—211.44. [Reserved].

Source

The provisions of these § § 211.32—211.44 reserved July 13, 2001, effective July 14, 2001, 31 Pa.B. 3751. Immediately preceding text appears at serial pages (243469) to (243482).

§ § 211.51—211.56. [Reserved].

Source

The provisions of these § § 211.51—211.56 reserved July 13, 2001, effective July 14, 2001, 31 Pa.B. 3751. Immediately preceding text appears at serial pages (243481) to (243490).

§ § 211.61 and 211.62. [Reserved].

Source

The provisions of these § § 211.61 and 211.62 reserved July 13, 2001, effective July 14, 2001, 31 Pa.B. 3751. Immediately preceding text appears at serial pages (243490) to (243495).

§ 211.71. [Reserved].

Source

The provisions of this § 211.71 reserved October 15, 1982, effective October 16, 1982, 12 Pa.B. 3736. Immediately preceding text appears at serial page (11436).

§ 211.72. [Reserved].

Source

The provisions of this § 211.72 amended October 15, 1982, effective October 16, 1982, 12 Pa.B. 3736; reserved July 13, 2001, effective July 14, 2001, 31 Pa.B. 3751. Immediately preceding text appears at serial pages (243495) to (243496).

§ § 211.73—211.76. [Reserved].

Source

The provisions of these § § 211.73—211.76 reserved July 13, 2001, effective July 14, 2001, 31 Pa.B. 3751. Immediately preceding text appears at serial pages (243496) to (243497).

§ § 211.81—211.87. [Reserved].

Source

The provisions of these § § 211.81—211.87 reserved July 13, 2001, effective July 14, 2001, 31 Pa.B. 3751. Immediately preceding text appears at serial text pages (243497) to (243499).

§ 211.88. [Reserved].

Source

The provisions of this § 211.88 amended July 28, 1972, 2 Pa.B. 1439; reserved July 13, 2001, effective July 14, 2001, 31 Pa.B. 3751. Immediately preceding text appears at serial page (243499).

§ 211.101. Definitions.

The following words and terms, when used in this chapter, have the following meanings, unless the context clearly indicates otherwise:

Access point—A point in the outer perimeter security and a point in the inner perimeter security that allows entry to or exit from the magazine or the magazine site.

Airblast—An airborne shock wave resulting from an explosion, also known as air overpressure, which may or may not be audible.

Blast area—The area around the blast site that should be cleared to prevent injury to persons and damage to property.

Blast site—The specific location where the explosives charges are loaded into the blast holes.

Blaster—An individual who is licensed by the Department under Chapter 210 (relating to blasters' licenses) to detonate explosives and supervise blasting activities.

Blaster-in-charge—The blaster designated to have supervision and control over all blasting activities related to a blast.

Blasting activity—The actions associated with the use of explosives from the time of delivery of explosives to a worksite until all postblast measures are taken, including priming, loading, stemming, wiring or connecting, detonating, and all necessary safety, notification and monitoring measures.

Building—A structure that is designed for human habitation, employment or assembly.

Charge weight—The weight in pounds of an explosive charge.

Concertina razor wire—Razor wire that is extended in a spiral for use as a barrier, such as along or on a fence and having a minimum of 101 coils of wire to 50 linear feet.

Delay interval—The designed time interval, usually in milliseconds, between successive detonations.

Detonator—

(i) A device containing an initiating or primary explosive that is used for initiating detonation of explosives.

(ii) The term includes electric blasting caps of instantaneous and delay types, blasting caps for use with safety fuses, detonating cord, delay connectors and nonelectric instantaneous and delay blasting caps.

Display fireworks— (i) Large fireworks designed primarily to produce visible or audible effects by combustion, deflagration or detonation.

(ii) The term includes, but is not limited to, salutes containing more than 2 grains (130 mg) of explosive materials, aerial shells containing more than 40 grams of pyrotechnic compositions, and other display pieces which exceed the limits of explosive materials for classification as consumer fireworks. Display fireworks are classified as fireworks UN0333, UN0334 or UN0335 by the United States Department of Transportation at 49 CFR 172.101 (relating to purpose and use of hazardous materials table).

(iii) The term also includes fused setpieces containing components which together exceed 50 mg of salute powder.

Explosive—A chemical compound, mixture or device that contains oxidizing and combustible materials or other ingredients in such proportions or quantities that an ignition by fire, friction, concussion, percussion or detonation may result in an explosion.

(i) The term includes safety fuse, squibs, detonating cord and igniters.

(ii) The term does not include the following:

(A) Commercially manufactured black powder, percussion caps, safety and pyrotechnic fuses, matches and friction primers, intended to be used solely for sporting, recreational or cultural purposes in antique firearms or antique devices, as defined in 18 U.S.C.A. § 921 (relating to definitions).

(B) Smokeless powder, primers used for reloading rifle or pistol cartridges, shot shells, percussion caps and smokeless propellants intended for personal use.

Flyrock—Overburden, stone, clay or other material ejected from the blast area by the force of a blast.

Indoor magazine—A magazine located entirely within a secure intrusion-resistant and theft-resistant building which is primarily used for commercial or industrial purposes.

Inner perimeter security—Measures taken to increase the intrusion resistance and theft resistance of a magazine that encircles an individual or a group of magazines. These measures lie within the outer perimeter security measures.

Magazine—A structure used for the storage of explosives.

Misfire—Incomplete detonation of explosives.

Outdoor magazine site—The contiguous area of land upon which the following are located: a magazine or group of magazines; the outer perimeter security, and the inner perimeter security, if any.

Outer perimeter security—Measures taken to increase the intrusion resistance of magazines that encircle the area where the magazines are situated.

Particle velocity—A measure of the intensity of ground vibration, specifically the time rate of change of the amplitude of ground vibration.

Peak particle velocity—The maximum intensity of particle velocity.

Person—A natural person, partnership, association, or corporation or an agency, instrumentality or entity of state government.

Primer—A cartridge or package of high explosives into which a detonator has been inserted or attached.

Purchase—To obtain ownership of explosives from another person.

Sale or sell—To transfer ownership of explosives to another person.

Scaled distance (Ds)—A value calculated by using the actual distance (D) in feet, measured in a horizontal line from the blast site to the nearest building or structure, neither owned nor leased by the blasting activity permittee or its customer, divided by the square root of the maximum weight of explosives (W) in pounds, that is detonated per delay period of less than 8 milliseconds.
Ds = D/(square root) W

Stemming—Inert material placed in a blast hole after an explosive charge for the purpose of confining the explosion gases to the blast hole, and inert material used to separate explosive charges in decked holes.

Structure—

(i) A combination of materials or pieces of work built or composed of parts joined together in some definite manner for occupancy, use or ornamentation.

(ii) The term includes everything that is built or constructed, including bridges, offices, water towers, silos and dwellings.

Utility line—An electric cable, fiber optic line, pipeline or other type of conduit used to transport or transmit electricity, gases, liquids and other media including information.

Wheeled vehicle—A vehicle that moves about on three or more wheels and has a gross vehicle weight of less than 11,000 pounds.

Source

The provisions of this § 211.101 adopted July 13, 2001, effective July 14, 2001, 31 Pa.B. 3751; amended June 17, 2005, effective June 18, 2005, 35 Pa.B. 3406. Immediately preceding text appears at serial pages (281299) to (281300).

§ 211.102. Scope.

(a) This chapter applies to persons using, storing, purchasing and selling explosives and engaging in blasting activities within this Commonwealth. Persons using and storing explosives at underground mines are exempt from this chapter. The storage of explosives in magazines on the surface at an underground noncoal mine is subject to the applicable requirements of this chapter. The provisions of this chapter that are more stringent than the blasting provisions in Chapters 77, 87 and 88 (relating to noncoal mining; surface mining of coal; and anthracite coal) apply to blasting activities at coal or noncoal surface mines.

(b) Compliance with this chapter does not relieve a person who is engaged in the purchase or sale of explosives, or blasting activities, from compliance with other applicable laws or regulations of the Commonwealth.

Source

The provisions of this § 211.102 adopted July 13, 2001, effective July 14, 2001, 31 Pa.B. 3751.

§ 211.103. Enforcement.

(a) The Department may issue orders necessary to implement this chapter including an order to suspend, modify or revoke a license or permit authorized by this chapter.

(b) Before issuing an order modifying peak particle velocity or airblast limits in a blasting activity permit, the Department will first provide the permittee with an opportunity to meet and discuss modifications.

Source
The provisions of this § 211.103 adopted July 13, 2001, effective July 14, 2001, 31 Pa.B. 3751.

Subchapter B. STORAGE AND CLASSIFICATION OF EXPLOSIVES

Sec.

Source
The provisions of this Subchapter B adopted July 13, 2001, effective July 14, 2001, 31 Pa.B. 3751, unless otherwise noted.

Cross References
This subchapter cited in 25 Pa. Code § 211.141 (relating to requirements).

§ 211.111. Scope.

(a) This subchapter applies to the classification and storage of explosives. It establishes the requirements, procedures and standards for licensing, constructing, and siting and maintaining magazines.
(b) Persons storing explosives underground in permitted underground mines are exempt from this subchapter.

Source
The provisions of this § 211.111 amended June 17, 2005, effective June 18, 2005, 35 Pa.B. 3409. Immediately preceding text appears at serial page (281302).

§ 211.112. Magazine license and fees.

(a) A person storing explosives shall do so in a magazine licensed by the Department. A person may not construct, install or modify a magazine until the Department has issued or amended the license in writing. The licensee shall store explosives in accordance with the approved application, the license and this chapter.

(b) The license specifies the types and quantities of explosives to be stored in the magazine and any other condition necessary to ensure that the proposed activity complies with applicable statutes and this chapter.

(c) Licenses expire annually on December 31 of each year. If the Department receives a complete renewal application by December 31, the licensee may continue to operate under the current license until the Department acts on the renewal application.

(d) License fees are as follows:

(1) License:

(i) Application—$50

(ii) Site inspection—$50

(2) License modifications—$50

(3) License renewals—$50

(4) License transfers—no fee

§ 211.113. Application contents.

(a) An application to obtain, renew, modify or transfer a magazine license shall be on forms approved by the Department. Before the Department issues, renews, transfers or modifies a license, the application must demonstrate that the applicant has complied with the applicable requirements of this chapter.

(b) A completed license application shall include:

(1) The applicant's name, address and telephone number.

(2) A contact person, including name, title and telephone number.

(3) The types and quantities of explosives to be stored within the magazine.

(4) A map, plan or a sketch of the site location showing the nearest buildings, nearest railways, nearest highways, and existing barricades, if any, and proposed barricades.

(5) A plan showing the design and specifications of the magazine to be licensed.

(6) A plan showing the design, specifications, dimensions and locations of all security measures to be installed under § 211.115(d) (relating to standards for classifying and storing explosives and constructing, maintaining and siting magazines).

(7) The latitude and longitude of outdoor magazines except for Type 3 magazines as defined in 27 CFR 555.203(c) (relating to types of magazines).

(8) The latitude and longitude of indoor magazines containing high explosives.

(c) A license renewal application shall include:

(1) The applicant's name, address and telephone number.

(2) A contact person, including name, title and telephone number.

(3) The maximum amount and type of explosives for which the magazine is currently licensed.

Source

The provisions of this § 211.113 amended June 17, 2005, effective June 18, 2005, 35 Pa.B. 3409. Immediately preceding text appears at serial pages (281302) to (281303).

Cross References

This section cited in 25 Pa. Code § 211.115 (relating to standards for classifying and storing explosives and constructing, maintaining and siting magazines).

§ 211.114. Displaying the license.

The magazine license, or a legible copy of the license, shall be conspicuously displayed. If possible, the license shall be displayed inside the magazine. In all other cases, the license shall be displayed at the site and adjacent to the magazine to which it applies.

§ 211.115. Standards for classifying and storing explosives and constructing, maintaining and siting magazines.

(a) The provisions of 27 CFR Part 555, Subpart K (relating to storage), are incorporated herein by reference. If any provision of 27 CFR Part 555, Subpart K addresses an issue addressed in this section, the more stringent provision applies. These provisions shall be used to:

(1) Classify explosives.

(2) Determine which class of explosives may be stored in each type of magazine.

(3) Determine the quantity of explosives that may be stored.

(4) Determine the applicable construction standards for each type of magazine.

(5) Site the magazine.

(6) Specify maintenance and housekeeping standards for a magazine.

(7) Grant variances.

(b) For purposes of incorporation by reference of 27 CFR Part 555, Subpart K, the term "Department" is substituted for the term "director" and the term "representatives of the Department" is substituted for the term "ATF Official."

(c) Indoor magazines shall be located in buildings which are in compliance with all applicable building codes and other applicable regulations

(d) Persons storing only display fireworks in Type 4 magazines as defined in 27 CFR 555.203(d) (relating to types of magazines) are exempt from this subsection except for paragraphs (8) and (9). Type 3 magazines as defined in 27 CFR 555.203(c), are exempt from this subsection. The following security measures apply to outdoor magazines and to indoor magazines located in buildings that are not intrusion-resistant and theft-resistant:

(1) Each magazine site shall be inspected by the licensee or his agent at least daily at approximately 24-hour intervals. If all magazines and outer perimeter security gates at the site are equipped with electronic intrusion detection devices conforming with paragraphs (3)(ii) or (iii), and (4)(ii) or (iii), or otherwise approved, in writing, by the Department, the inspection shall be conducted at least every 7 days. Individual magazines or entire magazine sites which do not contain explosives are not required to be inspected provided the inspection records reflect the date the last explosives were removed from the magazine. Each inspection shall include the magazine itself, the access points and perimeter security. The inspection can be performed by a person or electronically by remote cameras. A record of the inspections shall be kept and made available to the Department. Records shall be maintained for at least 3 years. The record of each inspection shall include:

(i) The names of the persons who inspected the site.

(ii) The date and time each inspection began and ended.

(iii) Any information related to the integrity of the magazine site.

(iv) Actions taken on problems discovered.

(v) The dates on which no inspections were conducted because no explosives were contained in the magazine.

(2) There may be no more than one access point to each magazine site. The Department may approve, in writing, more than one access point to a magazine site if the Department determines that the security of the site will be maintained.

(3) Each magazine must have outer perimeter security that obstructs, to the greatest extent possible, unauthorized access to the magazine by wheeled vehicles. The outer perimeter security must surround the entire magazine site and be located at least 25 feet away from the exterior of any magazine within the site or at least 25 feet away from the inner perimeter security measures, whichever is applicable. The Department may approve, in writing, a lesser distance upon request when the Department determines a lesser distance is appropriate and will not compromise the security of the magazine site. The outer perimeter security requirements can be met by measures approved by the Department as provided for in subsection (g) or by one or a combination of the following:

(i) A sufficient number of personnel assigned to physically inspect each magazine containing explosives or detonators at least once every hour. All persons acting in this capacity shall at all times be equipped with a

communications device capable of providing direct verbal communications with either the police department having jurisdiction or another person who has the ability to contact the police department having jurisdiction.

(ii) Closed Circuit Television (CCTV) continuously monitoring the entire outer perimeter, or any portion of the outer perimeter that is not protected by another measure.

(A) The images shall be recorded and maintained at least until magazine integrity is confirmed during the next required site inspection.

(B) The latest output images of all CCTV cameras shall be viewed at least once every hour by a person having direct verbal communications with the police department having jurisdiction.

(iii) Electronic intrusion detection devices including, but not limited to: microwave sensors, seismic detectors, vehicle detectors, alarms or infrared motion detectors.

(A) If microwave sensors, seismic sensors, vehicle detectors or similar devices are used, the zone of detection of the devices shall encompass the entire outer perimeter, or any portion of the outer perimeter that is not protected by another measure.

(B) All systems shall have the capability of providing initial notification of an alert within 15 minutes of an event and an onsite presence in response to an alert within 1 hour.

(C) All systems shall have a backup power supply, and provide an alert in the event of a power loss or a compromise of the system integrity.

(iv) An earthen barrier, a minimum of 7 feet in height. Earthen barriers shall be constructed to obstruct, to the greatest extent possible, unauthorized access by wheeled vehicles. If made of loose soils the earthen barrier shall be compacted and vegetated to the greatest extent possible.

(v) A barrier constructed of boulders. The boulders shall be of a size and weight sufficient to deter, to the greatest extent possible, defeat of the barrier by wheeled vehicles.

(vi) A highwall that is a minimum of 7 feet in height and whose face or slopes are sufficient to obstruct, to the greatest extent possible, unauthorized access to the magazine site by wheeled vehicles.

(vii) Barriers composed of natural terrain features which are impassable, to the greatest extent possible, to wheeled vehicles.

(viii) A fencing system constructed of members that are of sufficient size, strength and anchorage to deter, to the greatest extent possible, the fencing system from being bent over, broken through or uprooted by a wheeled vehicle.

(ix) Other equivalent barriers approved by the Department, in writing.

(4) In addition to the requirements contained in paragraph (3), a magazine or group of magazines within a site that contains high explosives or detonators shall be enclosed by inner perimeter security designed to obstruct, to the greatest extent possible, access by unauthorized persons. The additional inner perimeter security shall be located at least 6 feet away from the exterior of any magazine within the site and at least 25 feet inside and away from the outer perimeter security. The inner perimeter security requirement can be met by measures approved by the Department as provided for in subsection (g) or by one or a combination of the following:

(i) A sufficient number of personnel assigned to physically inspect each magazine containing high explosives or detonators at least once every hour. All persons acting in this capacity shall at all times be equipped with a communications device capable of providing direct verbal communications with either the police department having jurisdiction or another person who has the ability to contact the police department having jurisdiction.

(ii) CCTV continuously monitoring the magazine interior or the exterior of the doors of each magazine containing high explosives or detonators.

(A) The images shall be recorded and maintained at least until magazine integrity is confirmed during the next required site inspection.

(B) The latest output images of all CCTV cameras shall be viewed at least once every hour by a person having direct verbal communications with the police department having jurisdiction.

(iii) Electronic intrusion detection devices including, but not limited to: microwave sensors, seismic detectors, alarms or infrared motion detectors.

(A) If alarms, infrared motion detectors or other similar devices are used, they shall be installed on each magazine containing high explosives or detonators. Alarms shall be installed on all magazine doors. Infrared motion detectors and other similar devices shall be installed on the interior of each magazine.

(B) If microwave sensors, seismic sensors or similar devices are used, the zone of detection of the devices shall encompass the entire inner perimeter, or any portion of the inner perimeter that is not protected by another measure.

(C) All systems shall have the capability of providing initial notification of an alert within 15 minutes of an event and an onsite presence in response to an alert within 1 hour.

(D) All systems shall have a backup power supply, and shall provide an alert in the event of a power loss or a compromise of the system integrity.

(iv) A highwall that is a minimum of 20 feet in height and whose face or slopes are sufficient to obstruct, to the greatest extent possible, access by unauthorized persons.

(v) A fence constructed of a minimum of 9 gauge chain link fencing with a maximum 2-inch mesh that is kept in a condition which maintains its original functionality. The fence shall:

(A) Be buried at least 1 foot at the base or be equipped with a minimum 1.66 inch outside diameter bottom rail.

(B) Have a minimum height of 8 feet above the ground.

(C) Have a top rail with a minimum 1.66 inch outside diameter.

(D) Have firmly anchored posts 10 feet or less on center. End, corner and pull posts shall have a minimum outside diameter of 2.875 inches if round or 2.5-inch square. Intermediate posts shall have a minimum outside diameter of 2.375 inches if round or 2.25-inch C-Section. Posts shall be set in concrete at a minimum depth of 33 inches. The post holes shall be a minimum of 12 inches in diameter and be completely filled with concrete.

(E) Have outriggers at the top with concertina razor wire attached.

(F) Have concertina razor wire attached on the inside at the bottom.

(G) Have as many gates as the licensee demonstrates are necessary to provide for the safe exit of employees in the event of an emergency.

(H) All inner perimeter security emergency exit gates shall meet the requirements specified in paragraph (6).

(I) Vegetation shall be kept trimmed or suppressed to a distance of 6 feet from each side of the fence.

(vi) The Department may approve, in writing, the use of other security fence systems or other barriers that provide at least equivalent security.

(5) In addition to outer perimeter security, all portable magazines being used as stationary magazines and magazines having an a volume of less than 3 cubic yards shall be immobilized by fastening the magazine securely to the earth or a terrain feature in a manner sufficient to prevent displacement of the magazine by a wheeled vehicle.

(6) Any single layer of perimeter security measures that obstructs, to the greatest extent possible, unauthorized access to the magazine by wheeled vehicles and deters, to the greatest extent possible, access by unauthorized persons, and is located at least 25 feet away from the exterior of any magazine within the site may be employed to satisfy the requirements of both paragraphs (3) and (4).

(7) Inner perimeter security gates shall be constructed at all access points. Gates shall have firmly anchored posts and shall be kept in a condition which maintains their original functionality. Each gate shall be securely padlocked whenever the site is unoccupied.

(i) Gates shall be constructed of a minimum of 9 gauge chain link fencing with a maximum 2-inch mesh. Gate frame members shall be a minimum outside diameter of 1.9 inches if round or 2.0-inch if square.

(ii) Gates shall have firmly anchored gate posts with a minimum 6.625-inch outside diameter. Posts shall be set in concrete at a minimum depth of 42 inches. The postholes shall be a minimum of 16 inches in diameter and shall be completely filled with concrete.

(iii) Gates shall have outriggers at the top with concertina razor wire attached.

(iv) The construction of the gates shall be contiguous with the surrounding fence.

(v) All gates shall have 2 locks. The locks shall have separate hasps and staples.

(vi) Each lock shall have a hood of at least 1/4-inch thick steel. The hoods must prevent sawing or lever-cutting action on the locks, hasps, and staples.

(vii) Each lock shall have at least five tumblers and a case-hardened shackle of at least 3/8 inches in diameter.

(viii) When a lock and chain are used to secure a gate, the minimum specification of the chain shall be 3/8 inch Grade 70, Transport.

(ix) The Department may approve, in writing, the use of other security gate systems that provide at least equivalent security.

(8) Outer perimeter security gates shall be constructed at all access points. Gates shall be designed and constructed to deter, to the greatest extent possible, defeat of the gate by wheeled vehicles. Gates shall have firmly anchored posts and be kept in a condition which maintains their original functionality. Gateposts shall be a minimum 6.625-inch outside diameter. Posts shall be set in concrete at a minimum depth of 42 inches. The postholes shall be a minimum of 16 inches in diameter and be completely filled with concrete. The Department may approve, in writing, the use of gateposts having smaller diameters or other shapes or alternate gatepost anchoring methods, or both, that provide at least equivalent security.

(9) Outer perimeter security gates shall be padlocked whenever the site is unoccupied. All gates shall have 2 locks which meet the specifications of paragraph (7)(vi)—(viii).

(10) "No Trespassing" signs shall be placed around the outer perimeter of the site. Warning signs shall be placed at all access points. Signs shall be well maintained.

(i) "No Trespassing" signs shall be spaced so that, except for corners, adjacent signs are visible.

(ii) Signs shall be placed so that a bullet passing directly through the sign will not impact a magazine.

(iii) Warning signs at all access points shall provide notice of private property and no trespassing, in addition to providing a notice substantially conforming to the following: "Danger, never fight explosives fires, explosives are stored on this site" to warn first responders and the public of the hazards contained within.

(iv) Warning signs at all access points shall provide an emergency contact phone number.

(v) Signs may not be obscured by vegetation or other obstructions.

(vi) Signs shall be constructed of a durable, weather-resistant material. Letters and numbers shall be of a minimum height of 2 inches that can be easily seen and read.

(11) Magazines shall be constructed to the standards contained in this paragraph. Magazines shall be constructed according to the construction standards found in 27 CFR Part 555, Subpart K (relating to storage) with the following additions:

(i) Mobile type 5 magazines being used as stationary magazines for more than 1 year must be located within the outer perimeter security, shall be immobilized in accordance with 27 CFR 555.211 (relating to construction of type 5 magazines) and be fastened securely to the earth or a terrain feature in a manner sufficient to prevent movement of the magazine by a motor vehicle. Motor vehicles used to transport bulk blasting agents that are left unattended at a magazine site must have two Department approved methods of disabling the vehicles to render them effectively immobilized and the vehicles must be kept within the outer perimeter security. Disabling methods may include:

(A) Steering locking devices

(B) Pedal locking devices

(C) Fuel or electrical system disablers.

(D) Other equivalent disabling measures approved by the Department.

(ii) Systems of pumps or tanks, or both, used to store, mix or dispense bulk blasting agents at magazine sites shall be equipped with locks or shall otherwise be constructed to prevent the unauthorized removal of blasting agents from the system.

(12) A person who stores explosive materials shall notify both the local police having jurisdiction in the area where the explosives are being stored and the Pennsylvania State Police of the storage. This notification must be made in the

manner of and in addition to the notification requirements in 27 CFR 555.201(f) (relating to general).

(13) A person who stores explosive materials shall immediately notify the Department, the Pennsylvania State Police and the local police jurisdiction, if any, when any of the following occur:

(i) Evidence is discovered of a break-in or theft at the magazine, or an attempted theft or break-in has occurred.

(ii) The security measures required by this section have been breached or disabled or partially breached or disabled. Short-term partial breaches of security of less than 48-hour duration need not be reported under this subsection if all of the following apply:

(A) The partial breach was due to equipment failure or accidental or natural causes.

(B) An account of the partial breach was recorded under paragraph (1).

(C) Immediate measures are being taken to repair or replace the partial breach.

(iii) Unauthorized persons exhibiting suspicious behavior are observed in the vicinity of the magazine.

(iv) Inventory records indicate that explosive material is missing and unaccounted for.

(14) The notifications to State and local agencies required in paragraphs (12) and (13) are in addition to any notification required by agencies of the United States.

(e) Licensees of magazines licensed prior to June 18, 2005, shall comply with this section according to the following schedule except as approved by the Department under subsections (f) and (g):

(1) Immediately upon June 18, 2005, the inspection and notification requirements shall be implemented.

(2) Within 180 days of approval of the plan required by subsections (f) or (g), implement either the outer or inner perimeter security measure requirements.

(3) Within 360 days of approval of the plan required by subsections (f) or (g), implement the remaining perimeter security measure requirements.

(4) The Department, at its sole discretion, may approve, in writing, a time extension to the requirements of either paragraph (2) or (3) if the licensee has demonstrated a good faith effort to comply with the perimeter security measure requirements imposed under this chapter.

(f) By August 17, 2005, licensees of magazines licensed prior to June 18, 2005, shall submit to the Department on forms provided by the Department:

(1) The plan required by § 211.113(b)(6) (relating to application contents).

(2) A schedule for the implementation of the plan required by § 211.113(b)(6).

(3) If the security enhancements required by subsection (d) cannot be implemented in the time frames required by subsection (e), the plan must include a request for a time extension. The request for a time extension must include a schedule and a justification for the extension. The Department will act upon time extension requests within 30 days of the receipt of the request.

(g) After consultation with the Pennsylvania State Police and the Pennsylvania Office of Homeland Security, the Department may approve, in writing, alternatives to specific requirements of this section which are based upon advanced technology or other alternatives and which, either alone or in combination with other measures, provide at least equivalent security at magazines or magazine sites. The Department will act upon requests for approval of alternative security measures or, upon the written request of the licensee, for approval of plans submitted pursuant to subsection (f) within 30 days of the receipt of the request. The Department may extend this review period for up to an additional 30 days if additional time is necessary to properly review the request.

(h) Requests for Department approval of plans submitted under subsection (f) or alternate requirements, including alternative security measures and time extensions under this section, shall be on forms provided by the Department.

(i) A licensee will be deemed to be in compliance with this section as to having deterred or obstructed, to the greatest extent possible, unauthorized intrusion upon a magazine site if the licensee constructs, installs, implements and maintains the security measures specified in subsection (d), which meet the requirements of this section and which are specified by the licensee in one of the following:

(1) A plan submitted to the Department under subsection (f).

(2) A plan submitted to and approved by the Department under subsection (g).

(3) A plan submitted to the Department under § 211.113(b)(6) (relating to application contents).

Source

The provisions of this § 211.115 amended June 17, 2005, effective June 18, 2005, 35 Pa.B. 3409. Immediately preceding text appears at serial page (281303).

Cross References

This section cited in 25 Pa. Code § 211.113 (relating to application contents).

Subchapter C. PERMITS

Sec.

Source

The provisions of this Subchapter C adopted July 13, 2001, effective July 14, 2001, 31 Pa.B. 3751, unless otherwise noted.

§ 211.121. General requirements.

(a) Except as otherwise provided in this subchapter, a person may not engage in blasting activities, or sell or purchase explosives in this Commonwealth without first obtaining the appropriate permit from the Department issued under this chapter.

(b) Permits under this chapter are not required for the sale, purchase or use of fireworks governed by the act of May 15, 1939 (35 P. S. § § 1271—1277).

(c) A permit issued under the Surface Mining Conservation and Reclamation Act (52 P. S. § § 1396.1—1396.19a), or the Noncoal Surface Mining and Conservation and Reclamation Act (52 P. S. § § 3301—3326), and the regulations promulgated thereunder, authorizing blasting activity shall act as a blasting activity permit issued under this chapter.

(d) An application for a permit for the sale or purchase of explosives or to conduct blasting activities shall be on a form provided by the Department. A permit will not be issued unless the application is complete and demonstrates that the proposed activities comply with the applicable requirements of this chapter. The Department will notify applicants of an incomplete application and

identify the items necessary to complete the application. The permittee shall comply with the approved application, the permit and this chapter.

(e) The Department will not issue a permit to any person who has either:

(1) Failed and continues to fail to comply with this chapter or a condition of a permit issued under this chapter or an order issued to enforce this chapter.

(2) Demonstrated an inability or lack of intention to comply with this chapter as indicated by past or continuing violations.

§ 211.122. Permits to sell explosives.

(a) An application for a permit to sell explosives shall:

(1) Identify the applicant's name, address, telephone number and type of business.

(2) Identify a contact person, including name, title and telephone number.

(3) Specify the type of explosives to be sold.

(4) State whether the applicant will purchase or manufacture the explosives to be sold.

(5) For in-State sellers, include the applicant's magazine license number, if applicable.

(b) Permits to sell explosives are not transferable.

(c) Permits to sell explosives expire on April 30 of each year. If the Department receives a complete renewal application by April 30, the permittee may continue to operate under the current permit until the Department acts on the renewal application.

(d) A permit to sell explosives shall:

(1) Identify the permittee.

(2) Specify the type of explosives that the permittee may sell.

(3) Contain conditions, as necessary, to ensure that the proposed activity complies with applicable statutes and this chapter.

§ 211.123. Permits to purchase explosives.

(a) An application for a permit to purchase explosives shall:

(1) Identify the applicant's name, address, telephone number and type of business.

(2) Identify a contact person, including name, title and telephone number.

(3) Identify the location and license number of the magazine to be used for storing the explosives, if applicable.

(4) Specify the type of explosives that will be purchased.

(5) Specify whether the explosives are being purchased for sale or use by the permittee.

(b) Permits to purchase explosives are not transferable.

(c) Permits to purchase explosives expire on April 30 of each year. If the Department receives a complete renewal application by April 30, the permittee may continue to operate under the current permit until the Department acts on the renewal.

§ 211.124. Blasting activity permits.

(a) An application for a blasting activity permit shall be prepared by a blaster and shall include:

(1) The applicant's name, address, telephone number and type of business.

(2) A contact person's name, title and telephone number.

(3) The identity of independent subcontractors who will be performing the blasting activities.

(4) The type of explosives to be used.

(5) The maximum amount of explosives that will be detonated per delay interval of less than 8 milliseconds.

(6) The maximum amount of explosives that will be detonated in any one blast.

(7) A map indicating the location where the explosives will be used.

(8) The purpose for which the explosives will be used.

(9) The location and license number of the magazine that will be used to store the explosives, if applicable.

(10) A description of how the monitoring requirements of Subchapter G (relating to requirements for monitoring) will be satisfied.

(11) Proof of third party general liability insurance in the amount of $300,000 or greater per occurrence. This requirement is not applicable if the permittee is a noncoal surface mine operator who produces no more than 2,000 tons (1,814 metric tons) of marketable minerals per year from all its noncoal surface mining operations.

(12) The anticipated duration of the blasting activity for which the permit is needed.

(13) The anticipated days of the week and times when blasting may occur.

(14) The distance and direction to the closest building not owned by the permittee or its customer.

(15) Other information needed by the Department to determine compliance with applicable laws and regulations.

(16) The printed name, signature and license number of the blaster who prepared the application.

(17) Proof that residents within 200 feet (65.61 meters) of the blast site were informed of the proposed blasting operation. This notification could be a personal notification, written material left at each residence, or first class mail. The notification will provide general information about the blasting operation including the duration of the operation.

(b) Blasting activity permits are not transferable.

(c) The blasting activity permit shall specify:

(1) The blasting activity permittee.

(2) Any independent subcontractors performing work under this permit.

(3) Limits on particle velocity and airblast.

(4) The types of explosives that may be used.

(5) The duration of the permit.

(6) Other conditions necessary to ensure that the proposed blasting activity complies with the applicable statutes and this chapter.

(d) The permittee may request extensions and modifications by submitting an amended application.

§ 211.125. Blasting activity permit-by-rule.

(a) A person shall be deemed to have a permit for a blasting activity if:

(1) The blasts are designed and performed for a scaled distance of 90 or greater.

(2) No more than 15 pounds (6.81 kilograms) of explosives are detonated per delay interval of less than 8 milliseconds.

(3) The total charge weight per blast does not exceed 150 pounds (68.18 kilograms).

(4) The person notifies the Department either verbally, in writing, or by other means approved by the Department prior to the initial blast. If the person gives verbal notification, a written notice shall be received by the Department within 5 working days. The notification shall indicate the following information for all blasts that will occur under this permit:

(i) The identity of the person.

(ii) The location where the blasting will occur.

(iii) The purpose of the blasting.

(iv) The distance to the nearest building not owned or leased by the person or its customer.

(v) The days of the week and times when blasting may occur.

(vi) The duration of blasting activities under this permit by rule.

(vii) The minimum scaled distance.

(viii) The maximum weight of explosives detonated per delay period of less than 8 milliseconds.

(ix) The maximum total weight of explosives per blast.

(x) A contact person and telephone number.

(5) Blast reports are completed in accordance with § 211.133 (relating to blast report).

(6) The other monitoring and performance standards of this chapter are met.

(b) The Department may revoke a blasting activity permit by rule under one of the following:

(1) The permittee has demonstrated an unwillingness or inability to comply with the applicable regulations.

(2) The blasting activity possesses a sufficient risk of harm to the public or the environment to warrant an individual blasting activity permit.

Subchapter D. RECORDS OF DISPOSITION OF EXPLOSIVES

Sec.

Source

The provisions of this Subchapter D adopted July 13, 2001, effective July 14, 2001, 31 Pa.B. 3751, unless otherwise noted.

§ 211.131. Sales records.

The seller shall keep an accurate record of every sale of explosives for 3 years. The record shall identify the purchaser's name and address, the Department purchase permit number, the date of the sale and the amount and types of explosives.

§ 211.132. Purchase records.

The purchaser shall keep a record of all purchases of explosives for 3 years. The record shall identify the date, types and amounts of explosives purchased and the name and address of the seller.

§ 211.133. Blast reports.

(a) The blaster-in-charge shall prepare a report of each blast to provide the Department with sufficient information to reconstruct the conditions and events surrounding a blast. The Department may develop and require a blast report

form to be used. The blasting activity permittee shall retain the blast report for at least 3 years and shall make the blast report available to the Department upon request. Blast reports shall contain, at a minimum, the following:

(1) The locations of the blast and monitoring readings.

(2) The name of the blasting activity permittee.

(3) The blasting activity permit or appropriate mining permit number.

(4) The date and time of the blast.

(5) The printed name, signature and license number of the blaster-in-charge.

(6) The type of material blasted.

(7) A sketch showing the number of blast holes, burden, spacing, pattern dimensions and point of initiation.

(8) The diameter and depth of blast holes.

(9) The height or length of stemming and deck separation for each hole.

(10) The types of explosives used and arrangement in blast holes.

(11) The total weight in pounds of explosives and primer cartridges used.

(12) The maximum weight in pounds of explosives detonated per delay period of less than 8 milliseconds.

(13) The type of circuit, if electric detonation was used.

(14) The direction and distance in feet from the blast site to the nearest building not owned by the blasting activity permittee or its customer.

(15) A description of the nearest building location not owned or leased by the blasting activity permittee or its customer based upon local landmarks.

(16) The scaled distance.

(17) The weather conditions.

(18) The direction from which the wind was coming.

(19) The measures taken to control flyrock, including whether or not mats were used.

(20) The total quantity and type of detonators used and delays used.

(21) The number of individuals in the blasting crew.

(22) The maximum number of blast holes or portions of blast holes detonated per delay period less than 8 milliseconds.

(23) The monitoring records required by § 211.173 (relating to monitoring records). Monitoring records shall be made part of the blast report within 30 days of the blast. Beginning July 14, 2004, monitoring records shall be made part of the blast report within 14 days of the blast. The Department may grant a waiver to allow monitoring records to be made part of the blasting record within 30 days of the blast if all blasts, regardless of scaled distance, are monitored and monthly summaries of these reports, including the information required in subsection (b), are provided. Monitoring records shall be made part of the blast report within 7 days, if requested by the Department.

(24) If a misfire occurred, the actions taken to make the site safe as specified in § 211.157 (relating to postblast measures).

(b) The Department may require monthly summaries of these reports. The summaries shall include the date and time of the blasts, scaled distance, peak particle velocity, airblast, monitoring location, amount and types of explosives used and other information the Department deems necessary to ensure compliance with this chapter.

Cross References

This section cited in 25 Pa. Code § 211.135 (relating to blasting activity permit-by-rule); 25 Pa. Code § 211.154 (relating to preparing the blast); and 25 Pa. Code § 211.157 (relating to postblast measures).

Subchapter E. TRANSPORTATION OF EXPLOSIVES

Sec.

Source

The provisions of this Subchapter E adopted July 13, 2001, effective July 14, 2001, 31 Pa.B. 3751, unless otherwise noted.

§ 211.141. General requirements.

The blasting activity, purchase or sale permittee shall:

(1) Immediately unload a vehicle carrying explosives upon reaching a magazine location. The unloaded vehicle shall be removed from the site. The only exception to this requirement is if the vehicle is a licensed magazine under Subchapter B (relating to the storage and classification of explosives).

(2) Load or unload explosives from a vehicle only after the engine is turned off, unless power is needed for the loading or unloading operation. The permittee shall take all precautions necessary, such as blocking the wheels, to prevent the movement of the vehicle while it is being loaded or unloaded.

(3) Load explosives only into a vehicle that is marked in accordance with the Department of Transportation standards for placarding vehicles transporting explosives.

(4) Prohibit smoking within 100 feet of a vehicle used for transporting explosives. "NO SMOKING" signs shall be posted when a vehicle containing explosives is parked at a blast site or magazine.

(5) Load no more than 2,000 pounds (908 kilograms) of explosives into an open body vehicle for transporting. The ends and sides shall be high enough to prevent explosives from falling off, and the load shall be covered with a fire-resistant tarpaulin, unless the explosives are transported in a magazine securely attached to the vehicle.

(6) Load explosives into a closed body vehicle if the load is more than 2,000 pounds (908 kilograms) of explosives.

(7) Only load explosives into a vehicle with a bed made of wood or other nonsparking material.

(8) Load explosives into a vehicle which is also transporting metal, metal tools, blasting machines or other articles or materials likely to damage the

explosives, only if these items are separated from the explosives by substantial nonsparking bulkheads constructed to prevent damage to the explosives.

(9) Load detonators and other explosives into the same vehicle only if the detonators are in containers that conform to the current version of the *Institute of Makers of Explosives Safety Library Publication # 22* available from the Institute of Makers of Explosives, 1120 Nineteenth Street, N. W., Suite 310, Washington, DC 20036-3605.

(10) Not load explosives into the same vehicle with materials such as matches, firearms, electric storage batteries, corrosive compounds, flammable substances, acids, oxidizing agents and ammonium nitrate not in the original containers.

(11) Only load explosives into vehicles equipped with a fire extinguisher having a National Board of Underwriters Laboratories rating of 10 B:C or more. The fire extinguisher shall be easily accessible and ready for immediate use.

(12) Load explosives into a vehicle so that explosives containers are not exposed to sparks or hot gases from the exhaust tailpipe. Exhaust systems that discharge upwards are recommended to avoid possible exposure of sparks or hot gases to explosives.

Only load explosives into vehicles that have passed the State safety inspection or certification.

Subchapter F. BLASTING ACTIVITIES

Sec.

Source

The provisions of this Subchapter F adopted July 13, 2001, effective July 14, 2001, 31 Pa.B. 3751, unless otherwise noted.

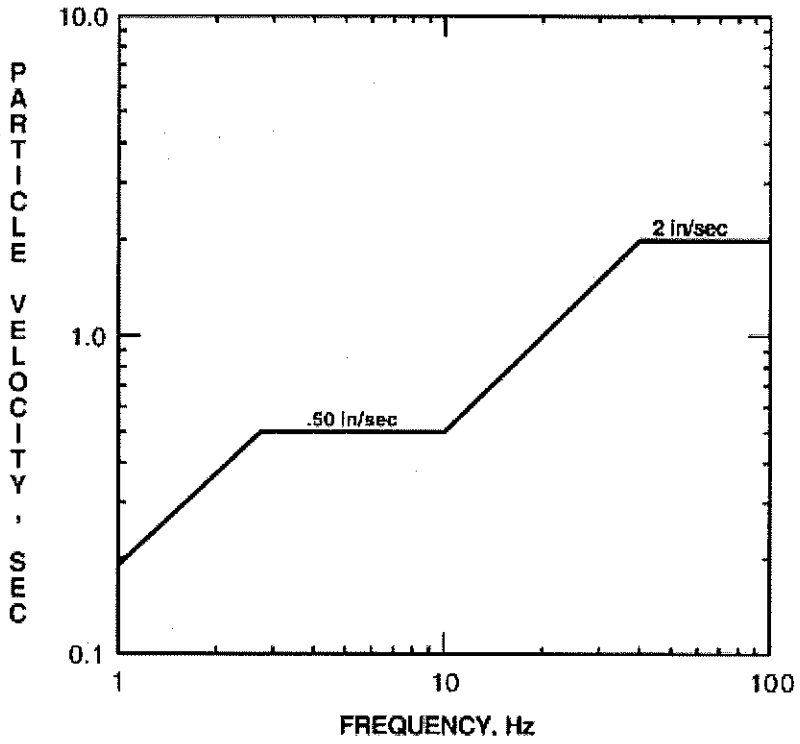
§ 211.151. Prevention of damage.

(a) Blasting may not damage real property except for real property under the control of the permittee. If damage occurs, the blaster-in-charge shall notify the Department within 4 hours of learning of the damage.

(b) Blasting may not cause flyrock. If flyrock occurs, the blaster-in-charge shall notify the Department within 4 hours of learning of the flyrock.

(c) Blasts shall be designed and conducted in a manner that achieves either a scaled distance of 90 or meets the maximum allowable peak particle velocity as indicated by Figure 1 at the closest building or other structure designated by the Department. However, blasting activities authorized prior to July 14, 2001, may continue as authorized unless the authorization is modified, suspended or revoked by the Department. The scaled distance and maximum allowable peak particle velocity does not apply at a building or other structure owned or leased by the permittee or its customer.

Figure 1.



(d) Blasts shall be designed and conducted to control airblast so that it does not exceed the noise levels specified in Table 1 at a building or other structure designated by the Department unless the building is owned or leased by the permittee or its customer.

Table 1	
Lower frequency limits of measuring System in Hz(+3dB)	Maximum allowable levels in dBL
0.1 Hz or lower — flat response*	134 peak
2.0 Hz or lower — flat response	133 peak
6.0 Hz or lower — flat response	129 peak
C - weighted — slow response*	105 peak
*only when approved by the Department	

(e) The Department may establish an alternative peak particle velocity or airblast level if it determines that an alternative standard is appropriate because of density of population, land use, age or type of structure, geology or hydrology of the area, frequency of blasts or other factors.

Cross References

This section cited in 25 Pa. Code § 211.173 (relating to monitoring records).

§ 211.152. Control of noxious gases.

A blast shall be conducted so that the gases generated by the blast do not affect the health and safety of individuals. Effects from gases may be prevented by taking measures such as venting the gases to the atmosphere, interrupting the path along which gases may flow, and evacuating people from areas that may contain gases.

§ 211.153. General requirements for handling explosives.

(a) Only a nonferrous, nonsparking tool shall be used to open containers of explosives.

(b) Matches, lighters and smoking are prohibited within 100 feet (30.48 meters) of the blast site and areas where explosives are used or stored.

(c) If it becomes necessary to destroy damaged or deteriorated explosives, the permittee shall immediately contact the manufacturer for technical advice and assistance.

(d) Detonators may not be forced into cartridges of explosive or cast boosters. Detonators shall be completely inserted into a hole in an explosive cartridge made with an approved powder punch or into the detonator well of a cast booster.

(e) Explosives may not be left unattended. They are to be stored in a licensed magazine or kept under the permittee's supervision and control.

(f) A loaded blast shall always be under the continuous observation of the blaster-in-charge or a designee.

(g) Shooting or carrying ammunition or firearms on a blast site and in areas where explosives are used or stored is prohibited, except for material needed to initiate the blast.

(h) If blasting activities are conducted in the vicinity of electric lines such as transmission lines or electrified railways, a test shall be made for presence of

stray electric currents. Electric blasting caps may not be used if stray electric currents in excess of 50 milliamperes are present.

(i) A package of explosives may not be thrown, slid along floors or over other packages of explosives, or handled roughly.

(j) If an electrical storm approaches an area where there is an activity involving explosives, the area shall be cleared by the permittee or licensee, who shall post guards at all approaches to prevent trespass of unauthorized persons.

(k) Explosives and equipment that are obviously damaged or deteriorated may not be used.

(l) Explosives may not be abandoned.

§ 211.154. Preparing the blast.

(a) The blasting activity permittee shall designate a blaster-in-charge for each blast. The blaster-in-charge shall control and supervise the blasting activity. The blaster-in-charge is responsible for all effects of the blast.

(b) Only equipment necessary for loading blast holes may be allowed to operate within 50 feet (15.24 meters) of the blast site. The Department may establish, in writing, a different distance limitation.

(c) A blaster-in-charge may not prepare or detonate a blast unless another person is present, able and ready to render assistance in the event of accident or injury.

(d) The blaster-in-charge shall make every effort to determine the condition of the material to be blasted from the individual who drilled the blast holes or from the drill log.

(e) Only the blaster-in-charge, other blasters, and up to six assistants per blaster may be at a blast site once loading of blast holes begins.

(f) While loading a blast hole, the following measures shall be followed:

(1) Ferrous material may not be used in the blast hole unless the use is approved by the Department in writing. This includes the use of steel casings, ferrous tools and retrieving equipment.

(2) Only nonferrous, nonsparking tamping sticks may be used in loading a blast hole. Sectional poles connected by brass fittings are permitted, if only the

nonferrous, nonsparking end of the pole is used for tamping. Retrieving hooks shall be made from nonsparking metal such as brass or bronze.

(3) When using a pneumatic loading device, every precaution shall be taken to prevent an accumulation of static electricity. A loading operation shall be stopped immediately if static electricity or stray electrical currents are detected. The condition shall be remedied before loading may be resumed.

(4) The blast hole shall be carefully checked for obstructions with a nonferrous, nonsparking tamping pole, a tape, a light or a mirror before it is loaded. The use of magnifying mirrors is prohibited. Explosives may not be forced past an obstruction in a blast hole.

(5) Each blast hole shall be logged throughout the leading process to measure the amount and location of explosives placed in the blast hole. The information is to be recorded on the blast report required by § 211.133 (relating to blast report).

(6) A blast hole containing loose dynamite shall be stemmed but not tamped.

(7) The Department may specify the type and amount of stemming.

(g) Before connecting one loaded blast hole to another, all activity within the blast area shall cease, and all nonessential persons shall retreat to a safe place. The blaster-in-charge shall determine the blast area.

(h) Primers shall be prepared only at the hole to be loaded, immediately prior to loading. The components of the primer are to be kept separated at the collar of the blast hole. The primer may not be slit, dropped, deformed or carelessly handled and may not be tamped or forced into the blast hole.

(i) Immediately upon completing the loading of a blast hole, any wood, paper or other materials used to pack explosives shall be inspected for the presence of explosives and removed to an isolated area. These materials may be burned after the blast has been fired. Persons may not be within 100 feet (30.48 meters) of these burning materials.

(j) Measures shall be taken to reduce the chance of flyrock including:

(1) The use of blasting mats or other protective devices, if, in the opinion of the blaster-in-charge, the measures are necessary to prevent injuries to persons or damage to property.

(2) When blasting to an open, vertical face, checking the face for loose, hanging material or other faults prior to loading the blast holes.

(k) Explosives may not be brought to a blast site in greater quantities than are expected to be needed for that blast. Surplus explosives may not be stored in the blast area.

(l) Before a blast hole is loaded, it shall be checked to ensure that it is cool and does not contain any hot metal or smoldering material remaining from drilling the hole.

(m) The use of abrasive or sharp-edged constituents in stemming material shall be avoided if tamping is necessary and the tamping may sever blasting cap leg wires, shock tubes or detonating cords.

(n) Blasting activities may not be conducted within 800 feet (243.84 meters) of a public roadway unless precautionary measures are taken to safeguard the public. Precautionary measures include stopping or slowing of traffic and posting signs.

§ 211.155. Preblast measures.

Prior to detonating a blast, the blaster-in-charge shall:

(1) Ensure that all excess explosives have been removed from the blast area and are located in a safe area.

(2) Inspect the blast site to ensure that connections are proper and adequate.

(3) Ensure that the blast area is cleared and safeguarded.

(4) In addition to the warning signal, notify all persons who may be in danger.

(5) Ensure that the necessary precautions are in place to protect the public on public roads.

(6) At least 1 minute but no more than 2 minutes prior to detonation, sound a warning signal of three blasts, each lasting approximately 5 seconds. The warning signal shall be of sufficient power to be heard 1,000 feet (304.80 meters) from the blast site.

§ 211.156. Detonating the blast.

(a) A blast may be detonated only between sunrise and sunset unless the Department authorizes a blast at another time of day.

(b) Only the blaster-in-charge may detonate a blast.

§ 211.157. Postblast measures.

(a) After a blast has been detonated, no one may return to the blast area until all smoke and fumes have dissipated.

(b) After the smoke and fumes have cleared, the blaster-in-charge shall return to the blast site and closely inspect the blast site to ensure that it is safe with respect to the blasting activity.

(c) After the blaster-in-charge has determined the blast area is safe, the blaster-in-charge shall sound an all-clear signal, consisting of one long blast, lasting approximately 10 seconds. This all-clear signal shall be of sufficient power to be heard 1,000 feet (304.80 meters) from the blast site.

(d) The blaster-in-charge shall determine if a misfire occurred and shall take all actions necessary to render the blast site safe. The blast site shall be made safe before drilling or muck removal begins.

(e) If the blaster-in-charge suspects that undetonated ammonium nitrate/fuel mixture remains in the muck pile, the muck pile shall be thoroughly wetted down with water before any digging is attempted. Special attention shall be given to determine if primers, other explosives or detonators are present in the muck pile.

(f) The blaster-in-charge shall immediately complete the blast report as required by § 211.133 (relating to blast report).

(g) The blaster-in-charge shall notify the Department within 24 hours of the occurrence of a misfire. A copy of the blast report shall be forwarded to the Department.

Cross References

This section cited in 25 Pa. Code § 211.133 (relating to blast reports).

§ 211.158. Mudcapping.

Mudcapping in blasting activities is allowed only if the blaster-in-charge determines that drilling the material to be blasted would endanger the safety of the workers. If mudcapping is necessary, no more than 10 pounds (4.53 kilograms) of explosives shall be used for a blast.

§ 211.159. Electric detonation.

(a) Electric blasting caps shall be tested for continuity with a blaster's galvanometer or blaster's multimeter specifically designed for testing blasting circuits. Testing shall be done:

(1) Before the primers are made up.

(2) After the blast hole has been loaded but prior to stemming.

(3) As the final connecting of the circuit progresses.

(b) When a shunt is removed from electric blasting cap leg wires, the exposed wires shall be reshunted.

(c) Electric blasting caps may not be employed in a blast if there is any possibility of wires from the circuit being thrown against overhead or nearby electric lines.

(d) An effort may not be made to reclaim or reuse electric blasting caps if the leg wires have been broken off near the top of the cap.

(e) Leg wires on electric blasting caps shall extend above the top of the blast hole. Wire connections and splices are not allowed in the blast hole.

(f) Only solid wire shall be used in a blasting circuit. The use of stranded wire is prohibited.

(g) When electric detonation is used near public roads, signs shall be erected at least 500 feet (152.40 meters) from the blast areas reading: "BLAST AREA - SHUT OFF ALL TWO-WAY RADIOS."

(h) A blasting machine is the only permissible source of electrical power for a detonation.

(i) The blasting circuit shall remain shunted until the time for detonation unless the circuit is being tested or connections are being made.

(j) A sticker shall be displayed on blasting machines that shows they have been tested within the last 30 days by procedures recommended by the manufacturer or supplier to ensure performance at rated capacity. If blasting caps are used in the test, they shall be covered with earth or sand.

(k) When electronic detonation is used, the blaster-in-charge shall determine that adequate current, as specified by the manufacturer of the detonators, is available to properly energize the detonators in the circuit.

§ 211.160. Nonelectric detonation.

Nonelectric initiation systems shall be checked and tested for secure connections in accordance with recommendations of the manufacturer of the system in use.

§ 211.161. Detonating cords.

(a) Detonating cord shall be cut from the supply roll immediately after placement in the blast hole. A sufficient length of downlines shall be left at the top of the blast hole for connections to trunk lines. The supply roll shall be immediately removed from the site. Scrap pieces of detonating cord shall be destroyed after connections are made.

(b) A trunk line shall be covered with at least 12 inches (0.30 meter) of earth or sand, unless otherwise authorized by the Department.

(c) Detonating cord may not be spliced if the resulting splice will fall within a blast hole.

§ 211.162. Safety fuse.

(a) When safety fuse is used in blasting, it shall be long enough to provide a burn time of 120 seconds or longer.

(b) Prior to using safety fuse, the blaster-in-charge shall conduct a test burn. The test burn will utilize at least a 12-inch (0.30-meter) section of fuse which is lit, then timed to determine actual burn time.

(c) A blasting cap shall only be crimped to a safety fuse with a proper crimping tool. A blasting cap may not be attached to a safety fuse in or within 10 feet (3.05 meters) of a magazine.

Subchapter G. REQUIREMENTS FOR MONITORING

Sec.

Source

The provisions of this Subchapter G adopted July 13, 2001, effective July 14, 2001, 31 Pa.B. 3751, unless otherwise noted.

§ 211.171. General provisions for monitoring.

(a) If the scaled distance of a blast is 90 or numerically less at the closest building not owned or leased by the blasting activity permittee or its customer, ground vibration and airblast monitoring shall be conducted. The Department may require the permittee to conduct ground vibration and airblast monitoring at other buildings or structures even if the scaled distance is greater than 90.

(b) Blasting activities without monitoring may be considered in compliance with this chapter if at a specified location, on at least five blasts, monitoring has demonstrated that the maximum peak particle velocity at the specified location represents more than a 50% reduction from the limit in the permit and this chapter. Future blasts shall maintain a scaled distance equal to or greater than the scaled distance for the monitored blasts.

(c) If monitoring is required, a ground vibration and airblast record of each blast shall be made part of the blast report.

(d) If monitoring is performed with instruments that have variable "trigger levels," the trigger for ground vibration shall be set at a particle velocity of no more than .25 inches per second unless otherwise directed by the Department.

(e) If the peak particle velocity and airblast from a blast are below the set trigger level of the instrument, a printout from the instrument shall be attached to the blast report. This printout shall provide the date and time when the instrument was turned on and off, the set trigger levels and information concerning the status of the instrument during the activation period. When an instrument is used that does not provide this information, the Department will allow the permittee to supply on/off times on a signed statement.

§ 211.172. Monitoring instruments.

If monitoring is required, the monitoring instrument shall provide a permanent record of each blast.

(1) A monitoring instrument for recording ground vibration, at a minimum, shall have:

(i) A frequency range of 2 Hz to 100 Hz.

(ii) Particle velocity range of .02 to 4.0 inches (5.08×10^{-4} to 0.10 meters) per second or greater.

(iii) An internal dynamic calibration system.

(2) A monitoring instrument used to record airblast shall have:

(i) A lower frequency limit of 0.1, 2.0 or 6.0 Hz.

(ii) An upper end flat-frequency response of at least 200 Hz.

(iii) A dynamic range that, at a minimum, extends from 106 to 142 dBL.

(3) A monitoring instrument shall be calibrated annually and when an instrument is repaired and the repair may effect the response of the instrument. Calibration shall be done by the manufacturer of the equipment, or by an organization approved by the manufacturer, or by an organization having verifiable knowledge of the calibration procedures developed by the manufacturer. The calibration procedure shall include testing the response of the entire system to externally-generated dynamic inputs. These inputs shall test the entire monitoring system at a sufficient number of discrete frequency intervals to assure flat response throughout the frequency ranges specified by this chapter. Dynamic reference standards used for calibration shall be traceable to the National Institute of Standards and Technology (NIST). Calibration procedures and documentation of calibration shall be made available for review by the Department.

(4) A nonalterable sticker that is clearly visible shall be firmly affixed to the instrument. The sticker shall indicate the name of the calibration facility, the calibration technician, the date of calibration and frequency range of the airblast monitor.

§ 211.173. Monitoring records.

(a) Anyone using a monitoring instrument shall be trained on the proper use of that instrument by a representative of the manufacturer or distributor, or other competent individual. A record of that training is to be maintained and available for review by the Department.

(b) Monitoring records, at a minimum, shall contain:

(1) A calibration pulse on each of the mutually-perpendicular ground vibration traces. These pulses shall represent the dynamic response of the entire recording system to an internally-generated calibration signal, and shall allow the Department to verify that the seismograph is recording ground vibration to its specific accuracy.

(2) The time history of particle velocities for three mutually perpendicular ground vibration traces and one air-overpressure trace, including time base, amplitude scales and peak values for all traces.

(3) The results of a field calibration test for each channel.

(4) The frequency content of all vibration signals using either single degree of freedom (SDF) response spectrum or half-cycle zero-crossing analysis methods.

(5) Frequency versus particle velocity plots as indicated in § 211.151(c), Figure 1 (relating to prevention of damage).

(6) The name and signature of the individual taking the recording.

(7) The location of the monitoring instrument, date and time of the recording.

(8) The last calibration date of the monitoring instrument.

(c) If the Department questions the validity of a ground vibration or airblast record, or the interpretation of the record, the Department may require a ground vibration or airblast recording to be analyzed or certified by an independent, qualified consultant who is not related to the blasting activity permittee or its customer. When the Department requires that a recording be analyzed or certified, it shall be performed and included with the blast report within 30 days.

Cross References

This section cited in 25 Pa. Code § 211.133 (relating to blast reports).

Subchapter H. BLASTING ACTIVITIES NEAR UTILITY LINES

Sec.

Source

The provisions of this Subchapter H adopted July 13, 2001, effective July 14, 2001, 31 Pa.B. 3751, unless otherwise noted.

§ 211.181. Scope.

This subchapter applies to buried or underground utility lines and utility lines making contact with the surface of the ground.

§ 211.182. General provisions.

(a) Blasts shall be designed and conducted so that they provide the greatest relief possible in a direction away from the utility line and to keep the resulting vibration and actual ground movement to the lowest possible level.

(b) Blasting shall use a type of explosive specifically designed to minimize the likelihood of propagation between explosive charges.

(c) When blasting within 200 feet (60.96 meters) of a utility line, blast holes may not exceed 3 inches (7.62×10^{-2} meters) in diameter.

(d) Blasting in the vicinity of a utility line shall be conducted as follows:

(1) Excavation from the ground surface to a depth corresponding to the elevation of the top of the buried utility line may proceed at the discretion of the blaster-in-charge, using safe, accepted techniques.

(2) Once the excavation has attained a depth equal to the elevation of the top of the buried utility line or if the line is exposed, or makes solid contact with the surface, the vertical depth of subsequent blast holes shall be restricted to one half the horizontal distance from the closest portion of the utility line.

(e) If one or more of the requirements listed in this section are not feasible or creates a potential safety problem, the permittee may apply to the Department for a waiver of the provision or provisions in question. This waiver will be granted if, in the judgment of the Department and the utility owning the lines, the alternate procedure does not endanger the utility line.

APPENDIX A. [Reserved]

Source

The provisions of this Appendix A reserved July 13, 2001, effective July 14, 2001, 31 Pa.B. 3751. Immediately preceding text appears at serial pages (243499) to (243502).

Section VI
ATF Background Checks

Department of the Treasury
Bureau of Alcohol, Tobacco and Firearms
Washington, DC 20226

SAFE EXPLOSIVES ACT FACT SHEET

12/12/02

The Safe Explosives Act (the Act) was signed into law by the President on November 25, 2002. The legislation takes effect in two parts. The first two provisions outlined below are effective 60 days after enactment. The last three provisions outlined below are effective 180 days after enactment.
Effective January 24, 2003:

1. **New Prohibited Persons Categories**: The Act adds three new categories of persons prohibited from receiving or possessing explosives: (1) aliens (with limited exceptions); (2) persons who have been dishonorably discharged from the military; and (3) citizens of the United States who have renounced their citizenship. These categories have been added to the pre-existing list of prohibited persons, which includes felons; fugitives; users of, and persons addicted to, controlled substances; and persons who have been adjudicated mental defectives or committed to mental institutions. All prohibited persons are permitted to apply to the Bureau of Alcohol, Tobacco and Firearms (ATF) for relief from Federal explosives disabilities.

2. **Samples:** When requested by ATF, manufacturers and importers of explosive materials, including Ammonium Nitrate, must submit samples of these materials to ATF, as well as information on their chemical composition or other information. This will assist ATF in the identification of explosives found at crime scenes.

Effective May 24, 2003:
1. **Intrastate Permit:** Intrastate users of explosives must first obtain an ATF "limited permit" prior to receiving explosive materials. Intrastate users may include, for example, farmers or construction companies that acquire and use explosives infrequently and within their own State of residence. The limited permit will allow the purchaser to receive explosive materials from an in-State explosives licensee or permittee on no more than six (6) occasions during the period of the permit. The limited permit will be valid for one year. Currently, intrastate users are exempt from most provisions of Federal explosives law. By contrast, *interstate* users of explosives must obtain ATF user permits; importers, manufacturers, and dealers in explosive materials must obtain ATF licenses. The limited permit will not authorize the permittee to transport or use explosives interstate. This provision is significant, as ultimately all persons possessing

explosive materials in either interstate or intrastate commerce must first obtain a Federal license or permit issued by ATF.

2. **New Required Industry Information for More Thorough ATF Background Checks:** ATF must approve an explosives license or permit application if, among other things, the applicant is not prohibited from possessing explosives. Responsible persons (e.g., facility site managers, corporate officers) will now be required to submit to ATF identifying information, fingerprints, and photographs. Employees of licensees and permittees who will be possessing explosive materials must submit only identifying information. ATF must issue "letters of clearance" for those responsible persons and possessor employees who are not prohibited from possessing explosives. If ATF determines that a responsible person or employee is subject to an explosives prohibition, ATF must provide specific information to the employer and to the prohibited person (e.g., advise of appeal procedures). This new provision is significant, as all persons possessing explosive materials in either interstate or intrastate commerce will have to undergo a background check conducted by ATF.

3. **Inspections:** Generally, ATF will have to physically inspect all ATF licensees and permittees at least once every three calendar years for compliance with Federal explosives storage regulations.
In the case of user permits and licenses, ATF must verify by visual inspection that new applicants and renewal applicants have places of storage for explosive materials that meet the standards of safety and security set forth in the regulations.
In the case of new applicants for limited permits, ATF is not required to conduct a visual inspection of places of storage. Instead, ATF may verify by inspection or by "such other means as the Secretary determines appropriate" that there is acceptable storage. For the first and second renewal of limited permits, ATF may continue to verify storage by "such other means." However, if a field inspection has not been conducted during the previous three years, ATF must, for the third renewal and at least once every three years after that renewal, verify by a field inspection that the limited permittee has acceptable places of storage.

Section VII

Department of the Treasury
Bureau of Alcohol, Tobacco and Firearms
Washington, DC 20226

ATF -- Subpart K—Storage

§555.201 General.

(a) Section 842(j) of the Act and §555.29 of this part require that the storage of explosive materials by any person must be in accordance with the regulations in this part. Further, section 846 of this Act authorizes regulations to prevent the recurrence of accidental explosions in which explosive materials were involved. The storage standards prescribed by this subpart confer no right or privileges to store explosive materials in a manner contrary to State or local law.

(b) The Director may authorize alternate construction for explosives storage magazines when it is shown that the alternate magazine construction is substantially equivalent to the standards of safety and security contained in this subpart. Any alternate explosive magazine construction approved by the Director prior to August 9, 1982, will continue as approved unless notified in writing by the Director. Any person intending to use alternate magazine construction shall submit a letter application to the regional director (compliance) for transmittal to the Director, specifically describing the proposed magazine. Explosive materials may not be stored in alternate magazines before the applicant has been notified that the application has been approved.

(c) A licensee or permittee who intends to make changes in his magazines, or who intends to construct or acquire additional magazines, shall comply with §555.63.

(d) The regulations set forth in §§555.221 through 555.224 pertain to the storage of display fireworks, pyrotechnic compositions, and explosive materials used in assembling fireworks and articles pyrotechnic.

(e) The provisions of §555.202(a) classifying flash powder and bulk salutes as high explosives are mandatory after March 7, 1990: *Provided,* that those persons who hold licenses or permits under this part on that date shall, with respect to the premises covered by such licenses or permits, comply with the high explosives storage requirements for flash powder and bulk salutes by March 7, 1991.

(f) Any person who stores explosive materials shall notify the authority having jurisdiction for fire safety in the locality in which the explosive materials are being stored of the type, magazine capacity, and location of each site where such explosive materials are stored. Such notification shall be made orally before the end of the day on which storage of the explosive materials commenced and in writing within 48 hours from the time such storage commenced.

(Paragraph (f) approved by the Office of Management and Budget under control number 1512–0536)[T.D. ATF–87, 46 FR 40384, Aug. 7, 1981, as amended by T.D. ATF–293, 55 FR 3722, Feb. 5, 1990; T.D. ATF–400, 63 FR 45003, Aug. 24, 1998]

§555.202 Classes of explosive materials.

For purposes of this part, there are three classes of explosive materials. These classes, together with the description of explosive materials comprising each class, are as follows:

(a) *High explosives.* Explosive materials which can be caused to detonate by means of a blasting cap when unconfined, (for example, dynamite, flash powders, and bulk salutes). See also §555.201(e).

(b) *Low explosives.* Explosive materials which can be caused to deflagrate when confined (for example, black powder, safety fuses, igniters, igniter cords, fuse lighters, and "display fireworks" classified as UN0333, UN0334, or UN0335 by the U.S. Department of Transportation regulations at 49 CFR 172.101, except for bulk salutes).

(c) *Blasting agents.* (For example, ammonium nitrate-fuel oil and certain water-gels (see also §555.11).

[T.D. ATF–87, 46 FR 40384, Aug. 7, 1981, as amended by T.D. ATF–293, 55 FR 3722, Feb. 5, 1990; T.D. ATF–400, 63 FR 45003, Aug. 24, 1998]

§555.203 Types of magazines.

For purposes of this part, there are five types of magazines. These types, together with the classes of explosive materials, as defined in §555.202, which will be stored in them, are as follows:

(a) *Type 1 magazines.* Permanent magazines for the storage of high explosives, subject to the limitations prescribed by §§555.206 and 555.213. Other classes of explosive materials may also be stored in type 1 magazines.

(b) *Type 2 magazines.* Mobile and portable indoor and outdoor magazines for the storage of high explosives, subject to the limitations prescribed by §§555.206, 555.208(b), and 555.213. Other classes of explosive materials may also be stored in type 2 magazines.

(c) *Type 3 magazines.* Portable outdoor magazines for the temporary storage of high explosives while attended (for example, a "day-box"), subject to the limitations prescribed by §§555.206 and 555.213. Other classes of explosives materials may also be stored in type 3 magazines.

(d) *Type 4 magazines.* Magazines for the storage of low explosives, subject to the limitations prescribed by §§555.206(b), 555.210(b), and 555.213. Blasting agents may be stored in type 4 magazines, subject to the limitations prescribed by §§555.206(c),

555.211(b), and 555.213. Detonators that will not mass detonate may also be stored in type 4 magazines, subject to the limitations prescribed by §§555.206(a), 555.210(b), and 555.213.

(e) *Type 5 magazines.* Magazines for the storage of blasting agents, subject to the limitations prescribed by §§555.206(c), 555.211(b), and 555.213.

§555.204 Inspection of magazines.

Any person storing explosive materials shall inspect his magazines at least every seven days. This inspection need not be an inventory, but must be sufficient to determine whether there has been unauthorized entry or attempted entry into the magazines, or unauthorized removal of the contents of the magazines.

§555.205 Movement of explosive materials.

All explosive materials must be kept in locked magazines meeting the standards in this subpart unless they are:

(a) In the process of manufacture;

(b) Being physically handled in the operating process of a licensee or user;

(c) Being used; or

(d) Being transported to a place of storage or use by a licensee or permittee or by a person who has lawfully acquired explosive materials under §555.106.

§555.206 Location of magazines.

(a) Outdoor magazines in which high explosives are stored must be located no closer to inhabited buildings, passenger railways, public highways, or other magazines in which high explosives are stored, than the minimum distances specified in the table of distances for storage of explosive materials in §555.218.

(b) Outdoor magazines in which low explosives are stored must be located no closer to inhibited buildings, passenger railways, public highways, or other magazines in which explosive materials are stored, than the minimum distances specified in the table of distances for storage of low explosives in §555.219, except that the table of distances in §555.224 shall apply to the storage of display fireworks. The distances shown in §555.219 may not be reduced by the presence of barricades.

(c)(1) Outdoor magazines in which blasting agents in quantities of more than 50 pounds are stored must be located no closer to inhabited buildings, passenger railways, or public highways than the minimum distances specified in the table of distances for storage of explosive materials in §555.218.

(2) Ammonium nitrate and magazines in which blasting agents are stored must be located no closer to magazines in which high explosives or other blasting agents are stored than the minimum distances specified in the table of distances for the separation of ammonium nitrate and blasting agents in §555.220. However, the minimum distances for magazines in which explosives and blasting agents are stored from inhabited buildings, etc., may not be less than the distances specified in the table of distances for storage of explosives materials in §555.218.

[T.D. ATF–87, 46 FR 40384, Aug. 7, 1981, as amended by T.D. ATF–293, 55 FR 3722, Feb. 5, 1990; T.D. ATF–400, 63 FR 45003, Aug. 24, 1998]

§555.207 Construction of type 1 magazines.

A type 1 magazine is a permanent structure: a building, an igloo or "Army-type structure", a tunnel, or a dugout. It is to be bullet-resistant, fire-resistant, weather-resistant, theft-resistant, and ventilated.

(a) *Buildings.* All building type magazines are to be constructed of masonry, wood, metal, or a combination of these materials, and have no openings except for entrances and ventilation. The ground around building magazines must slope away for drainage or other adequate drainage provided.

(1) *Masonry wall construction.* Masonry wall construction is to consist of brick, concrete, tile, cement block, or cinder block and be not less than 6 inches in thickness. Hollow masonry units used in construction must have all hollow spaces filled with well-tamped, coarse, dry sand or weak concrete (at least a mixture of one part cement and eight parts of sand with enough water to dampen the mixture while tamping in place). Interior walls are to be constructed of, or covered with, a nonsparking material.

(2) *Fabricated metal wall construction.* Metal wall construction is to consist of sectional sheets of steel or aluminum not less than number 14-gauge, securely fastened to a metal framework. Metal wall construction is either lined inside with brick, solid cement blocks, hardwood not less than four inches thick, or will have at least a six inch sand fill between interior and exterior walls. Interior walls are to be constructed of, or covered with, a nonsparking material.

(3) *Wood frame wall construction.* The exterior of outer wood walls is to be covered with iron or aluminum not less than number 26-gauge. An inner wall of, or covered with nonsparking material will be constructed so as to provide a space of not less than six inches between the outer and inner walls. The space is to be filled with coarse, dry sand or weak concrete.

(4) *Floors.* Floors are to be constructed of, or covered with, a nonsparking material and shall be strong enough to bear the weight of the maximum quantity to be stored. Use of pallets covered with a nonsparking material is considered equivalent to a floor constructed of or covered with a nonsparking material.

(5) *Foundations.* Foundations are to be constructed of brick, concrete, cement block, stone, or wood posts. If piers or posts are used, in lieu of a continuous foundation, the space under the buildings is to be enclosed with metal.

(6) *Roof.* Except for buildings with fabricated metal roofs, the outer roof is to be covered with no less than number 26-guage iron or aluminum, fastened to at least 7/8 inch sheathing.

(7) *Bullet-resistant ceilings or roofs.* Where it is possible for a bullet to be fired directly through the roof and into the magazine at such an angle that the bullet would strike the explosives within, the magazine is to be protected by one of the following methods:

(i) A sand tray lined with a layer of building paper, plastic, or other nonporous material, and filled with not less than four inches of coarse, dry sand, and located at the tops of inner walls covering the entire ceiling area, except that portion necessary for ventilation.

(ii) A fabricated metal roof constructed of 3/16-inch plate steel lined with four inches of hardwood. (For each additional 1/16 inch of plate steel, the hardwood lining may be decreased one inch.)

(8) *Doors.* All doors are to be constructed of not less than 1/4 inch plate steel and lined with at least two inches of hardwood. Hinges and hasps are to be attached to the doors by welding, riveting or bolting (nuts on inside of door). They are to be installed in such a manner that the hinges and hasps cannot be removed when the doors are closed and locked.

(9) *Locks.* Each door is to be equipped with (i) two mortise locks; (ii) two padlock fastened in separate hasps and staples; (iii) a combination of a mortise lock and a padlock; (iv) a mortise lock that requires two keys to open; or (v) a three-point lock. Padlocks must have at least five tumblers and a casehardened shackle of at least 3/8 inch diameter. Padlocks must be protected with not less than 1/4 inch steel hoods constructed so as to prevent sawing or lever action on the locks, hasps, and staples. These requirements do not apply to magazine doors that are adequately secured on the inside by means of a bolt, lock, or bar that cannot be actuated from the outside.

(10) *Ventilation.* Ventilation is to be provided to prevent dampness and heating of stored explosive materials. Ventilation openings must be screened to prevent the entrance of sparks. Ventilation openings in side walls and foundations must be offset or shielded for bullet-resistant purposes. Magazines having foundation and roof ventilators with the air circulating between the side walls and the floors and between the side walls and the ceiling must have a wooden lattice lining or equivalent to prevent the packages of explosive materials from being stacked against the side walls and blocking the air circulation.

(11) *Exposed metal.* No sparking material is to be exposed to contact with the stored explosive materials. All ferrous metal nails in the floor and side walls, which might be

exposed to contact with explosive materials, must be blind nailed, countersunk, or covered with a nonsparking lattice work or other nonsparking material.

(b) *Igloos, "Army-type structures", tunnels, and dugouts.* Igloo, "Army-type structure", tunnel, and dugout magazines are to be constructed of reinforced concrete, masonry, metal, or a combination of these materials. They must have an earthmound covering of not less than 24 inches on the top, sides and rear unless the magazine meets the requirements of paragraph (a)(7) of this section. Interior walls and floors must be constructed of, or covered with, a nonsparking material. Magazines of this type are also to be constructed in conformity with the requirements of paragraph (a)(4) and paragraphs (a)(8) through (11) of this section.

§555.208 Construction of type 2 magazines.

A type 2 magazine is a box, trailer, semitrailer, or other mobile facility.

(a) *Outdoor magazines*—(1) *General.* Outdoor magazines are to be bullet-resistant, fire-resistant, weather-resistant, theft-resistant, and ventilated. They are to be supported to prevent direct contact with the ground and, if less than one cubic yard in size, must be securely fastened to a fixed object. The ground around outdoor magazines must slope away for drainage or other adequate drainage provided. When unattended, vehicular magazines must have wheels removed or otherwise effectively immobiliized by kingpin locking devices or other methods approved by the Director.

(2) *Exterior construction.* The exterior and doors are to be constructed of not less than 1/4-inch steel and lined with at least two inches of hardwood. Magazines with top openings will have lids with water-resistant seals or which overlap the sides by at least one inch when in a closed position.

(3) *Hinges and hasps.* Hinges and hasps are to be attached to doors by welding, riveting, or bolting (nuts on inside of door). Hinges and hasps must be installed so that they cannot be removed when the doors are closed and locked.

(4) *Locks.* Each door is to be equipped with (i) two mortise locks; (ii) two padlocks fastened in separate hasps and staples; (iii) a combination of a mortise lock and a padlock; (iv) a mortise lock that requires two keys to open; or (v) a three-point lock. Padlocks must have at least five tumblers and a case-hardened shackle of at least 3/8-inch diameter. Padlocks must be protected with not less than 1/4-inch steel hoods constructed so as to prevent sawing or lever action on the locks, hasps, and staples. These requirements do not apply to magazine doors that are adequately secured on the inside by means of a bolt, lock, or bar that cannot be actuated from the outside.

(b) *Indoor magazines*—(1) *General.* Indoor magazines are to be fire-resistant and theft-resistant. They need not be bullet-resistant and weather-resistant if the buildings in which they are stored provide protection from the weather and from bullet penetration. No indoor magazine is to be located in a residence or dwelling. The indoor storage of high

explosives must not exceed a quantity of 50 pounds. More than one indoor magazine may be located in the same building if the total quantity of explosive materials stored does not exceed 50 pounds. Detonators must be stored in a separate magazine (except as provided in §555.213) and the total quantity of detonators must not exceed 5,000.

(2) *Exterior construction.* Indoor magazines are to be constructed of wood or metal according to one of the following specifications:

(i) Wood indoor magazines are to have sides, bottoms and doors constructed of at least two inches of hardwood and are to be well braced at the corners. They are to be covered with sheet metal of not less than number 26-gauge (.0179 inches). Nails exposed to the interior of magazines must be countersunk.

(ii) Metal indoor magazines are to have sides, bottoms and doors constructed of not less than number 12-gauge (.1046 inches) metal and be lined inside with a nonsparking material. Edges of metal covers must overlap sides at least one inch.

(3) *Hinges and hasps.* Hinges and hasps are to be attached to doors by welding, riveting, or bolting (nuts on inside of door). Hinges and hasps must be installed so that they cannot be removed when the doors are closed and locked.

(4) *Locks.* Each door is to be equipped with (i) two mortise locks; (ii) two padlocks fastened in separate hasps and staples; (iii) a combination of a mortise lock and a padlock; (iv) a mortise lock that requires two keys to open; or (v) a three-point lock. Padlocks must have at least five tumblers and a case-hardened shackle of at least 3/8-inch diameter. Padlocks must be protected with not less than 1/4-inch steel hoods constructed so as to prevent sawing or lever action on the locks, hasps, and staples. Indoor magazines located in secure rooms that are locked as provided in this subparagraph may have each door locked with one steel padlock (which need not be protected by a steel hood) having at least five tumblers and a case-hardened shackle of at least 3/8-inch diameter, if the door hinges and lock hasp are securely fastened to the magazine. These requirements do not apply to magazine doors that are adequately secured on the inside by means of a bolt, lock, or bar that cannot be actuated from the outside.

(c) *Detonator boxes.* Magazines for detonators in quantities of 100 or less are to have sides, bottoms and doors constructed of not less than number 12-gauge (.1046 inches) metal and lined with a nonsparking material. Hinges and hasps must be attached so they cannot be removed from the outside. One steel padlock (which need not be protected by a steel hood) having at least five tumblers and a case-hardened shackle of at least 3/8-inch diameter is sufficient for locking purposes.

§555.209 Construction of type 3 magazines.

A type 3 magazine is a "day-box" or other portable magazine. It must be fire-resistant, weather-resistant, and theft-resistant. A type 3 magazine is to be constructed of not less than number 12-gauge (.1046 inches) steel, lined with at least either 1/2-inch plywood or

1/2-inch Masonite-type hardboard. Doors must overlap sides by at least one inch. Hinges and hasps are to be attached by welding, riveting or bolting (nuts on inside). One steel padlock (which need not be protected by a steel hood) having at least five tumblers and a case-hardened shackle of at least 3/8-inch diameter is sufficient for locking purposes. Explosive materials are not to be left unattended in type 3 magazines and must be removed to type 1 or 2 magazines for unattended storage.

§555.210 Construction of type 4 magazines.

A type 4 magazine is a building, igloo or "Army-type structure", tunnel, dugout, box, trailer, or a semitrailer or other mobile magazine.

(a) *Outdoor magazines*—(1) *General.* Outdoor magazines are to be fire-resistant, weather-resistant, and theft-resistant. The ground around outdoor magazines must slope away for drainage or other adequate drainage be provided. When unattended, vehicular magazines must have wheels removed or otherwise be effectively immobilized by kingpin locking devices or other methods approved by the Director.

(2) *Construction.* Outdoor magazines are to be constructed of masonry, metal-covered wood, fabricated metal, or a combination of these materials. Foundations are to be constructed of brick, concrete, cement block, stone, or metal or wood posts. If piers or posts are used, in lieu of a continuous foundation, the space under the building is to be enclosed with fire-resistant material. The walls and floors are to be constructed of, or covered with, a nonsparking material or lattice work. The doors must be metal or solid wood covered with metal.

(3) *Hinges and hasps.* Hinges and hasps are to be attached to doors by welding, riveting, or bolting (nuts on inside of door). Hinges and hasps must be installed so that they cannot be removed when the doors are closed and locked.

(4) *Locks.* Each door is to be equipped with (i) two mortise locks; (ii) two padlocks fastened in separate hasps and staples; (iii) a combination of a mortise lock and a padlock; (iv) a mortise lock that requires two keys to open; or (v) a three-point lock. Padlocks must have at least five tumblers and case-hardened shackle of at least 3/8 inch diameter. Padlocks must be protected with not less than 1/4 inch steel hoods constructed so as to prevent sawing or lever action on the locks, hasps, and staples. These requirements do not apply to magazine doors that are adequately secured on the inside by means of a bolt, lock, or bar that cannot be actuated from the outside.

(b) *Indoor magazine*—(1) *General.* Indoor magazines are to be fire-resistant and theft-resistant. They need not be weather-resistant if the buildings in which they are stored provide protection from the weather. No indoor magazine is to be located in a residence or dwelling. The indoor storage of low explosives must not exceed a quantity of 50 pounds. More than one indoor magazine may be located in the same building if the total quantity of explosive materials stored does not exceed 50 pounds. Detonators that will

not mass detonate must be stored in a separate magazine and the total number of electric detonators must not exceed 5,000.

(2) *Construction.* Indoor magazines are to be constructed of masonry, metal-covered wood, fabricated metal, or a combination of these materials. The walls and floors are to be constructed of, or covered with, a nonsparking material. The doors must be metal or solid wood covered with metal.

(3) *Hinges and hasps.* Hinges and hasps are to be attached to doors by welding, riveting, or bolting (nuts on inside of door). Hinges and hasps must be installed so that they cannot be removed when the doors are closed and locked.

(4) *Locks.* Each door is to be equipped with (i) two mortise locks; (ii) two padlocks fastened in separate hasps and staples; (iii) a combination of a mortise lock and padlock; (iv) a mortise lock that requires two keys to open; or (v) a three-point lock. Padlocks must have at least five tumblers and a case-hardened shackle of at least 3/8 inch diameter. Padlocks must be protected with not less than 1/4 inch steel hoods constructed so as to prevent sawing or lever action on the locks, hasps, and staples. Indoor magazines located in secure rooms that are locked as provided in this subparagraph may have each door locked with one steel padlock (which need not be protected by a steel hood) having at least five tumblers and a case-hardened shackle of at least 3/8 inch diameter, if the door hinges and lock hasp are securely fastened to the magazine. These requirements do not apply to magazine doors that are adequately secured on the inside by means of a bolt, lock, or bar that cannot be actuated from the outside.

§555.211 Construction of type 5 magazines.

A type 5 magazine is a building, igloo or "Army-type structure", tunnel, dugout, bin, box, trailer, or a semitrailer or other mobile facility.

(a) *Outdoor magazines*—(1) *General.* Outdoor magazines are to be weather-resistant and theft-resistant. The ground around magazines must slope away for drainage or other adequate drainage be provided. When unattended, vehicular magazines must have wheels removed or otherwise be effectively immobilized by kingpin locking devices or other methods approved by the Director.

(2) *Construction.* The doors are to be constructed of solid wood or metal.

(3) *Hinges and hasps.* Hinges and hasps are to be attached to doors by welding, riveting, or bolting (nuts on inside of door). Hinges and hasps must be installed so that they cannot be removed when the doors are closed and locked.

(4) *Locks.* Each door is to be equipped with (i) two mortise locks; (ii) two padlocks fastened in separate hasps and staples; (iii) a combination of a mortise lock and a padlock; (iv) a mortise lock that requires two keys to open; or (v) a three-point lock. Padlocks must have at least five tumblers and a case-hardened shackle of at least 3/8 inch

diameter. Padlocks must be protected with not less than 1/4 inch steel hoods constructed so as to prevent sawing or lever action on the locks, hasps, and staples. Trailers, semitrailers, and similar vehicular magazines may, for each door, be locked with one steel padlock (which need not be protected by a steel hood) having at least five tumblers and a case-hardened shackle of at least 3/8 inch diameter, if the door hinges and lock hasp are securely fastened to the magazine and to the door frame. These requirements do not apply to magazine doors that are adequately secured on the inside by means of a bolt, lock, or bar that cannot be actuated from the outside.

(5) *Placards.* The placards required by Department of Transportation regulations at 49 CFR part 172, subpart F, for the transportation of blasting agents shall be displayed on all magazines.

(b) *Indoor magazines*—(1) *General.* Indoor magazines are to be theft-resistant. They need not be weather-resistant if the buildings in which they are stored provide protection from the weather. No indoor magazine is to be located in a residence or dwelling. Indoor magazines containing quantities of blasting agents in excess of 50 pounds are subject to the requirements of §555.206 of this subpart.

(2) *Construction.* The doors are to be constructed of wood or metal.

(3) *Hinges and hasps.* Hinges and hasps are to be attached to doors by welding, riveting, or bolting (nuts on inside). Hinges and hasps must be installed so that they cannot be removed when the doors are closed and locked.

(4) *Locks.* Each door is to be equipped with (i) two mortise locks; (ii) two padlocks fastened in separate hasps and staples; (iii) a combination of a mortise lock and a padlock; (iv) a mortise lock that requires two keys to open; or (v) a three-point lock. Padlocks must have at least five tumblers and a case-hardened shackle of at least 3/8 inch diameter. Padlocks must be protected with not less than 1/4 inch steel hoods constructed so as to prevent sawing or lever action on the locks, hasps, and staples. Indoor magazines located in secure rooms that are locked as provided in this subparagraph may have each door locked with one steel padlock (which need not be protected by a steel hood) having at least five tumblers and a case-hardened shackle of at least 3/8 inch diameter, if the door hinges and lock hasps are securely fastened to the magazine and to the door frame. These requirements do not apply to magazine doors that are adequately secured on the inside by means of a bolt, lock, or bar that cannot be actuated from the outside.

[T.D. ATF–87, 46 FR 40384, Aug. 7, 1981, as amended by T.D. ATF–298, 55 FR 21863, May 30, 1990]

§555.212 Smoking and open flames.

Smoking, matches, open flames, and spark producing devices are not permitted:

(a) In any magazine;

(b) Within 50 feet of any outdoor magazine; or

(c) Within any room containing an indoor magazine.

§555.213 Quantity and storage restrictions.

(a) Explosive materials in excess of 300,000 pounds or detonators in excess of 20 million are not to be stored in one magazine unless approved by the Director.

(b) Detonators are not to be stored in the same magazine with other explosive materials, except under the following circumstances:

(1) In a type 4 magazine, detonators that will not mass detonate may be stored with electric squibs, safety fuse, igniters, and igniter cord.

(2) In a type 1 or type 2 magazine, detonators may be stored with delay devices and any of the items listed in paragraph (b)(1) of this section.

§555.214 Storage within types 1, 2, 3, and 4 magazines.

(a) Explosive materials within a magazine are not to be placed directly against interior walls and must be stored so as not to interfere with ventilation. To prevent contact of stored explosive materials with walls, a nonsparking lattice work or other nonsparking material may be used.

(b) Containers of explosive materials are to be stored so that marks are visible. Stocks of explosive materials are to be stored so they can be easily counted and checked upon inspection.

(c) Except with respect to fiberboard or other nonmetal containers, containers of explosive materials are not to be unpacked or repacked inside a magazine or within 50 feet of a magazine, and must not be unpacked or repacked close to other explosive materials. Containers of explosive materials must be closed while being stored.

(d) Tools used for opening or closing containers of explosive materials are to be of nonsparking materials, except that metal slitters may be used for opening fiberboard containers. A wood wedge and a fiber, rubber, or wooden mallet are to be used for opening or closing wood containers of explosive materials. Metal tools other than nonsparking transfer conveyors are not to be stored in any magazine containing high explosives.

§555.215 Housekeeping.

Magazines are to be kept clean, dry, and free of grit, paper, empty packages and containers, and rubbish. Floors are to be regularly swept. Brooms and other utensils used in the cleaning and maintenance of magazines must have no spark-producing metal parts,

and may be kept in magazines. Floors stained by leakage from explosive materials are to be cleaned according to instructions of the explosives manufacturer. When any explosive material has deteriorated it is to be destroyed in accordance with the advice or instructions of the manufacturer. The area surrounding magazines is to be kept clear of rubbish, brush, dry grass, or trees (except live trees more than 10 feet tall), for not less than 25 feet in all directions. Volatile materials are to be kept a distance of not less than 50 feet from outdoor magazines. Living foliage which is used to stabilize the earthen covering of a magazine need not be removed.

§555.216 Repair of magazines.

Before repairing the interior of magazines, all explosive materials are to be removed and the interior cleaned. Before repairing the exterior of magazines, all explosive materials must be removed if there exists any possibility that repairs may produce sparks or flame. Explosive materials removed from magazines under repair must be (a) placed in other magazines appropriate for the storage of those explosive materials under this subpart, or (b) placed a safe distance from the magazines under repair where they are to be properly guarded and protected until the repairs have been completed.

§555.217 Lighting.

(a) Battery-activated safety lights or battery-activated safety lanterns may be used in explosives storage magazines.

(b) Electric lighting used in any explosives storage magazine must meet the standards prescribed by the "National Electrical Code," (National Fire Protection Association, NFPA 70–81), for the conditions present in the magazine at any time. All electrical switches are to be located outside of the magazine and also meet the standards prescribed by the National Electrical Code.

(c) Copies of invoices, work orders or similar documents which indicate the lighting complies with the National Electrical Code must be available for inspection by ATF officers.

§555.218 Table of distances for storage of explosive materials.

Quantity of explosives Distances in feet					
		Inhabited buildings		Public	
highways with traffic of magazines		Passenger railways_public		Separation	
3000 or fewer		highways with traffic volume		volume of	
Pounds over	Pounds not over	of more than 3,000 vehicles/day			
		Barricaded	Unbarricaded	Barricaded	Unbarricaded
Unbarricaded	Barricaded	Unbarricaded	Barricaded	Unbarricaded	Barricaded
0	5	70	140	30	60
5	10	90	180	35	70
10	20	110	220	45	90
20	30	125	250	50	100
30	40	140	280	55	110
40	50	150	300	60	120
50	75	170	340	70	140
75	100	190	380	75	150
100	125	200	400	80	160
125	150	215	430	85	170
150	200	235	470	95	190
200	250	255	510	105	210
250	300	270	540	110	220
300	400	295	590	120	240
51	102	6	12		
64	128	8	16		
81	162	10	20		
93	186	11	22		
103	206	12	24		
110	220	14	28		
127	254	15	30		
139	278	16	32		
150	300	18	36		
159	318	19	38		
175	350	21	42		
189	378	23	46		
201	402	24	48		
221	442	27	54		

400	500	320	640	130
260	238	476	29	58
500	600	340	680	135
270	253	506	31	62
600	700	355	710	145
290	266	532	32	64
700	800	375	750	150
300	278	556	33	66
800	900	390	780	155
310	289	578	35	70
900	1,000	400	800	160
320	300	600	36	72
1,000	1,200	425	850	165
330	318	636	39	78
1,200	1,400	450	900	170
340	336	672	41	82
1,400	1,600	470	940	175
350	351	702	43	86
1,600	1,800	490	980	180
360	366	732	44	88
1,800	2,000	505	1,010	185
370	378	756	45	90
2,000	2,500	545	1,090	190
380	408	816	49	98
2,500	3,000	580	1,160	195
390	432	864	52	104
3,000	4,000	635	1,270	210
420	474	948	58	116
4,000	5,000	685	1,370	225
450	513	1,026	61	122
5,000	6,000	730	1,460	235
470	546	1,092	65	130
6,000	7,000	770	1,540	245
490	573	1,146	68	136
7,000	8,000	800	1,600	250
500	600	1,200	72	144
8,000	9,000	835	1,670	255
510	624	1,248	75	150
9,000	10,000	865	1,730	260
520	645	1,290	78	156
10,000	12,000	875	1,750	270
540	687	1,374	82	164
12,000	14,000	885	1,770	275
550	723	1,446	87	174
14,000	16,000	900	1,800	280
560	756	1,512	90	180
16,000	18,000	940	1,880	285
570	786	1,572	94	188
18,000	20,000	975	1,950	290
580	813	1,626	98	196
20,000	25,000	1,055	2,000	315
630	876	1,752	105	210
25,000	30,000	1,130	2,000	340
680	933	1,866	112	224
30,000	35,000	1,205	2,000	360
720	981	1,962	119	238

35,000	40,000	1,275	2,000	380
760	1,026	2,000	124	248
40,000	45,000	1,340	2,000	400
800	1,068	2,000	129	258
45,000	50,000	1,400	2,000	420
840	1,104	2,000	135	270
50,000	55,000	1,460	2,000	440
880	1,140	2,000	140	280
55,000	60,000	1,515	2,000	455
910	1,173	2,000	145	290
60,000	65,000	1,565	2,000	470
940	1,206	2,000	150	300
65,000	70,000	1,610	2,000	485
970	1,236	2,000	155	310
70,000	75,000	1,655	2,000	500
1,000	1,263	2,000	160	320
75,000	80,000	1,695	2,000	510
1,020	1,293	2,000	165	330
80,000	85,000	1,730	2,000	520
1,040	1,317	2,000	170	340
85,000	90,000	1,760	2,000	530
1,060	1,344	2,000	175	350
90,000	95,000	1,790	2,000	540
1,080	1,368	2,000	180	360
95,000	100,000	1,815	2,000	545
1,090	1,392	2,000	185	370
100,000	110,000	1,835	2,000	550
1,100	1,437	2,000	195	390
110,000	120,000	1,855	2,000	555
1,110	1,479	2,000	205	410
120,000	130,000	1,875	2,000	560
1,120	1,521	2,000	215	430
130,000	140,000	1,890	2,000	565
1,130	1,557	2,000	225	450
140,000	150,000	1,900	2,000	570
1,140	1,593	2,000	235	470
150,000	160,000	1,935	2,000	580
1,160	1,629	2,000	245	490
160,000	170,000	1,965	2,000	590
1,180	1,662	2,000	255	510
170,000	180,000	1,990	2,000	600
1,200	1,695	2,000	265	530
180,000	190,000	2,010	2,010	605
1,210	1,725	2,000	275	550
190,000	200,000	2,030	2,030	610
1,220	1,755	2,000	285	570
200,000	210,000	2,055	2,055	620
1,240	1,782	2,000	295	590
210,000	230,000	2,100	2,100	635
1,270	1,836	2,000	315	630
230,000	250,000	2,155	2,155	650
1,300	1,890	2,000	335	670
250,000	275,000	2,215	2,215	670
1,340	1,950	2,000	360	720
275,000	300,000	2,275	2,275	690
1,380	2,000	2,000	385	770

TABLE: AMERICAN TABLE OF DISTANCES FOR STORAGE OF EXPLOSIVES (DECEMBER 1910), AS REVISED AND APPROVED BY THE INSTITUTE OF MAKERS OF EXPLOSIVES&MDASH;JULY, 1991.

NOTES TO THE TABLE OF DISTANCES FOR STORAGE OF EXPLOSIVES

(1) Terms found in the table of distances for storage of explosive materials are defined in §555.11.

(2) When two or more storage magazines are located on the same property, each magazine must comply with the minimum distances specified from inhabited buildings, railways, and highways, and, in addition, they should be separated from each other by not less than the distances shown for "Separation of Magazines," except that the quantity of explosives contained in cap magazines shall govern in regard to the spacing of said cap magazines from magazines containing other explosives. If any two or more magazines are separated from each other by less than the specified "Separation of Magazines" distances, then such two or more magazines, as a group, must be considered as one magazine, and the total quantity of explosives stored in such group must be treated as if stored in a single magazine located on the site of any magazine of the group, and must comply with the minimum of distances specified from other magazines, inhabited buildings, railways, and highways.

(3) All types of blasting caps in strengths through No. 8 cap should be rated at 1 1/2 lbs. (1.5 lbs.) of explosives per 1,000 caps. For strengths higher than No. 8 cap, consult the manufacturer.

(4) For quantity and distance purposes, detonating cord of 50 or 60 grains per foot should be calculated as equivalent to 9 lbs. of high explosives per 1,000 feet. Heavier or lighter core loads should be rated proportionately.

[T.D. ATF–87, 46 FR 40384, Aug. 7, 1981, as amended by T.D. ATF–400, 63 FR 45003, Aug. 24, 1998; T.D. ATF–446, 66 FR 16602, Mar. 27, 2001; T.D. ATF–446a, 66 FR 19089, Apr. 13, 2001]

§555.219 Table of distances for storage of low explosives.

Pounds		From inhabited building distance (feet)	From public railroad and highway distance (feet)	From above ground magazine (feet)
Over	Not over			
0	1,000	75	75	50
1,000	5,000	115	115	75
5,000	10,000	150	150	100
10,000	20,000	190	190	125
20,000	30,000	215	215	145
30,000	40,000	235	235	155
40,000	50,000	250	250	165
50,000	60,000	260	260	175
60,000	70,000	270	270	185
70,000	80,000	280	280	190
80,000	90,000	295	295	195
90,000	100,000	300	300	200
100,000	200,000	375	375	250
200,000	300,000	450	450	300

§555.220 Table of separation distances of ammonium nitrate and blasting agents from explosives or blasting agents.

TABLE: DEPARTMENT OF DEFENSE AMMUNITION AND EXPLOSIVES STANDARDS, TABLE 5&NDASH;4.1 EXTRACT; 4145.27 M, MARCH 1969

Donor weight (pounds)		Minimum separation distance of acceptor from donor when barricaded (ft.)		Minimum thickness of artificial barricades (in.)
Over	Not over	Ammonium nitrate	Blasting agent	
	100	3	11	12
100	300	4	14	12
300	600	5	18	12

600	1,000	6	22	12
1,000	1,600	7	25	12
1,600	2,000	8	29	12
2,000	3,000	9	32	15
3,000	4,000	10	36	15
4,000	6,000	11	40	15
6,000	8,000	12	43	20
8,000	10,000	13	47	20
10,000	12,000	14	50	20
12,000	16,000	15	54	25
16,000	20,000	16	58	25
20,000	25,000	18	65	25
25,000	30,000	19	68	30
30,000	35,000	20	72	30
35,000	40,000	21	76	30
40,000	45,000	22	79	35
45,000	50,000	23	83	35
50,000	55,000	24	86	35
55,000	60,000	25	90	35
60,000	70,000	26	94	40
70,000	80,000	28	101	40
80,000	90,000	30	108	40
90,000	100,000	32	115	40
100,000	120,000	34	122	50
120,000	140,000	37	133	50
140,000	160,000	40	144	50
160,000	180,000	44	158	50
180,000	200,000	48	173	50

200,000	220,000	52	187
60			
220,000	250,000	56	202
60			
250,000	275,000	60	216
60			
275,000	300,000	64	230
60			

TABLE: NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) OFFICIAL STANDARD NO. 492, 1968

NOTES OF TABLE OF SEPARATION DISTANCES OF AMMONIUM NITRATE AND BLASTING AGENTS FROM EXPLOSIVES OR BLASTING AGENTS

(1) This table specifies separation distances to prevent explosion of ammonium nitrate and ammonium nitrate-based blasting agents by propagation from nearby stores of high explosives or blasting agents referred to in the table as the "donor." Ammonium nitrate, by itself, is not considered to be a donor when applying this table. Ammonium nitrate, ammonium nitrate-fuel oil or combinations thereof are acceptors. If stores of ammonium nitrate are located within the sympathetic detonation distance of explosives or blasting agents, one-half the mass of the ammonium nitrate is to be included in the mass of the donor.

(2) When the ammonium nitrate and/or blasting agent is not barricaded, the distances shown in the table must be multiplied by six. These distances allow for the possibility of high velocity metal fragments from mixers, hoppers, truck bodies, sheet metal structures, metal containers, and the like which may enclose the "donor." Where explosives storage is in bullet-resistant magazines or where the storage is protected by a bullet-resistant wall, distances and barricade thicknesses in excess of those prescribed in the table in §555.218 are not required.

(3) These distances apply to ammonium nitrate that passes the insensitivity test prescribed in the definition of ammonium nitrate fertilizer issued by the Fertilizer Institute. [1] Ammonium nitrate failing to pass the test must be stored at separation distances in accordance with the table in §555.218.

[1]Definition and Test Procedures for Ammonium Nitrate Fertilizer, Fertilizer Institute 1015–18th St. N.W. Washington, DC 20036.

(4) These distances apply to blasting agents which pass the insensitivity test prescribed in regulations of the U.S. Department of Transportation (49 CFR part 173).

(5) Earth or sand dikes, or enclosures filled with the prescribed minimum thickness of earth or sand are acceptable artificial barricades. Natural barricades, such as hills or timber of sufficient density that the surrounding exposures which require protection cannot be seen from the "donor" when the trees are bare of leaves, are also acceptable.

(6) For determining the distances to be maintained from inhabited buildings, passenger railways, and public highways, use the table in §555.218.

§555.221 Requirements for display fireworks, pyrotechnic compositions, and explosive materials used in assembling fireworks or articles pyrotechnic.

(a) Display fireworks, pyrotechnic compositions, and explosive materials used to assemble fireworks and articles pyrotechnic shall be stored at all times as required by this Subpart unless they are in the process of manufacture, assembly, packaging, or are being transported.

(b) No more than 500 pounds (227 kg) of pyrotechnic compositions or explosive materials are permitted at one time in any fireworks mixing building, any building or area in which the pyrotechnic compositions or explosive materials are pressed or otherwise prepared for finishing or assembly, or any finishing or assembly building. All pyrotechnic compositions or explosive materials not in immediate use will be stored in covered, non-ferrous containers.

(c) The maximum quantity of flash powder permitted in any fireworks process building is 10 pounds (4.5 kg).

(d) All dry explosive powders and mixtures, partially assembled display fireworks, and finished display fireworks shall be removed from fireworks process buildings at the conclusion of a day's operations and placed in approved magazines.

[T.D. ATF–293, 55 FR 3722, Feb. 5, 1990, as amended by T.D. ATF–400, 63 FR 45004, Aug. 24, 1998]

§555.222 Table of distances between fireworks process buildings and between fireworks process and fireworks nonprocess buildings.

Net weight of fireworks \1\ (pounds)	Display fireworks \2\ (feet)	Consumer fireworks \3\ (feet)
0-100	57	37
101-200	69	37
201-300	77	37
301-400	85	37
401-500	91	37
Above 500	Not permitted \4\ \5\.	Not permitted \4\ \5\

\1\ Net weight is the weight of all pyrotechnic compositions, and explosive materials and fuse only.

\2\ The distances in this column apply only with natural or artificial barricades. If such barricades are not used, the distances must be doubled.

\3\ While consumer fireworks or articles pyrotechnic in a finished state are not subject to regulation, explosive materials used to manufacture or assemble such fireworks or articles are subject to regulation. Thus, fireworks process buildings where consumer fireworks or articles pyrotechnic are being processed shall meet these requirements.

\4\ A maximum of 500 pounds of in-process pyrotechnic compositions, either loose or in partially-assembled fireworks, is permitted in any fireworks process building. Finished display fireworks may not be stored in a fireworks process building.

\5\ A maximum of 10 pounds of flash powder, either in loose form or in assembled units, is permitted in any fireworks process building. Quantities in excess of 10 pounds must be kept in an approved magazine.

[T.D. ATF–293, 55 FR 3723, Feb. 5, 1990, as amended by T.D. ATF–400, 63 FR 45004, Aug. 24, 1998]

§555.223 Table of distances between fireworks process buildings and other specified areas.

Distance from Passenger Railways, Public Highways, Fireworks Plant Buildings used to Store Consumer Fireworks and Articles Pyrotechnic, Magazines and Fireworks Shipping Buildings, and Inhabited Buildings. \3\

Net weight of fireworks \1\ (pounds)	Display fireworks \1\ (feet) \4\ \5\	Consumer fireworks \2\ (feet)
0-100	200	25
101-200	200	50
201-300	200	50
301-400	200	50
401-500	200	50
Above 500	Not permitted	Not permitted.

\1\ Net weight is the weight of all pyrotechnic compositions, and exposive materials and fuse only.

\2\ While consumer fireworks or articles pyrotechnic in a finished state are not subject to regulation, explosive materials used to manufacture or assemble such fireworks or articles are subject to regulation. Thus, fireworks process buildings where consumer fireworks or articles pyrotechnic are being processed shall meet these requirements.

\3\ This table does not apply to the separation distances between fireworks process buildings (see § 555.222) and between magazines (see §§ 555.218 and 555.224).

\4\ The distances in this table apply with or without artificial or natural barricades or screen barricades. However, the use of barricades is highly recommended.

\5\ No work of any kind, except to place or move items other than explosive materials from storage, shall be conducted in any building designated as a warehouse. A fireworks plant warehouse is not subject to § 555.222 or this section, tables of distances.

[T.D. ATF–293, 55 FR 3723, Feb. 5, 1990, as amended by T.D. ATF–400, 63 FR 45004, Aug. 24, 1998]

§555.224 Table of distances for the storage of display fireworks (except bulk salutes).

Net weight of firework \1\ (pounds)	Distance between magazine and inhabited building, passenger railway, or public highway \3\ \4\ (feet)	Distance between magazines \2\ \3\ (feet)
0-1000	150	
100		
1001-5000	230	
150		
5001-10000	300	
200		
Above 10000	Use table §555.218	

\1\ Net weight is the weight of all pyrotechnic compositions, and exposive materials and fuse only.

\2\ For the purposes of applying this table, the term ``magazine'' also includes fireworks shipping buildings for display fireworks.

\3\ For fireworks storage magazines in use prior to (30 days from the date of publication of the final rule in the Federal Register), the distances in this table may be halved if properly barricaded between the magazine and potential receptor sites.

\4\ This table does not apply to the storage of bulk salutes. Use table at § 555.218.

[T.D. ATF–293, 55 FR 3723, Feb. 5, 1990, as amended by T.D. ATF–400, 63 FR 45004, Aug. 24, 1998]

Section VIII

U.S. Department of Labor

Mine Safety and Health Administration
Title 30 – Code of Federal Regulations

PART 57--SAFETY AND HEALTH STANDARDS UNDERGROUND METAL AND NONMETAL MINES

30 CFR § 57.1 Purpose and scope.

This part 57 sets forth mandatory safety and health standards for each underground metal or nonmetal mine, including related surface operations, subject to the Federal Mine Safety and Health Act of 1977. The purpose of these standards is the protection of life, the promotion of health and safety, and the prevention of accidents.

30 CFR § 57.2 Definitions.

The following definitions apply to this part. In addition definitions contained in any subpart of part 57 apply in that subpart. If inconsistent with the general definitions in this section, the definition in the subpart will apply in that subpart:

Abandoned areas means areas in which work has been completed, no further work is planned, and travel is not permitted.

Abandoned mine means all work has stopped on the mine premises and an office with a responsible person in charge is no longer maintained at the mine.

Abandoned workings means deserted mine areas in which further work is not intended.

Active workings means areas at, in, or around a mine or plant where men work or travel.

American Table of Distances means the current edition of ``The American Table of Distances for Storage of Explosives" published by the Institute of Makers of Explosives.

Approved means tested and accepted for a specific purpose by a nationally recognized agency.

Attended means presence of an individual or continuous monitoring to prevent unauthorized entry or access. In addition, areas containing explosive material at underground areas of a mine can be considered attended when all

access to the underground areas of the mine is secured from unauthorized entry. Vertical shafts shall be considered secure. Inclined shafts or adits shall be considered secure when locked at the surface.

Authorized person means a person approved or assigned by mine management to perform a specific type of duty or duties or to be at a specific location or locations in the mine.

Auxilary fan means a fan used to deliver air to a working place off the main airstream; generally used with ventilation tubing.

Barricaded means obstructed to prevent the passage of persons, vehicles, or flying materials.

Barrier means a material object, or objects that separates, keeps apart, or demarcates in a conspicuous manner such as cones, a warning sign, or tape.

Berm means a pile or mound of material along an elevated roadway capable of moderating or limiting the force of a vehicle in order to impede the vehicle's passage over the bank of the roadway.

Blast area means the area in which concussion (shock wave), flying material, or gases from an explosion may cause injury to persons. In determining the blast area, the following factors, shall be considered:

(1) Geology or material to be blasted.
(2) Blast pattern.
(3) Burden, depth, diameter, and angle of the holes.
(4) Blasting experience of the mine.
(5) Delay system, powder factor, and pounds per delay.
(6) Type and amount of explosive material.
(7) Type and amount of stemming.

Blast site means the area where explosive material is handled during loading, including the perimeter formed by the loaded blastholes and 50 feet (15.2 meters) in all directions from loaded holes. A minimum distance of 30 feet (9.1 meters) may replace the 50-foot (15.2- meter) requirement if the perimeter of loaded holes is demarcated with a barrier. The 50-foot (15.2-meter) and alternative 30-foot (9.1-meter) requirements also apply in all directions along the full depth of the hole. In underground mines, at least 15 feet (4.6 meters) of solid rib, pillar, or broken rock can be substituted for the 50-foot (15.2-meter) distance. In underground mines utilizing a block-caving system or similar system, at least 6 feet (1.8 meters) of solid rib or pillar, including concrete reinforcement of at least 10 inches (254 millimeters), with overall dimensions of not less than 6 feet (1.8 meters) may be substituted for the 50-foot (15.2-meter) distance requirement.

Blasting agent means any substance classified as a blasting agent by the Department of Transportation in 49 CFR 173.114(a) (44 FR 31182, May 31, 1979) which is incorporated by reference. This document is available for inspection at each Metal and Nonmetal Mine Safety and Health District Office of the Mine Safety and Health Administration, and may be obtained from the U.S. Government Printing Office, Washington, DC 20402.

Blasting area means the area near blasting operations in which concussion or flying material can reasonably be expected to cause injury.

Blasting cap means a detonator which is initiated by a safety fuse.

Blasting circuit means the electrical circuit used to fire one or more electric blasting caps.

Blasting switch means a switch used to connect a power source to a blasting circuit.

Blowout means a sudden, violent, release of gas or liquid due to the reservoir pressure in a petroleum mine.

Booster means any unit of explosive or blasting agent used for the purpose of perpetuating or intensifying an initial detonation.

Booster fan means a fan installed in the main airstream or a split of the main airstream to increase airflow through a section or sections of a mine.

Capped fuse means a length of safety fuse to which a blasting cap has been attached.

Capped primer means a package or cartridge of explosives which is specifically designed to transmit detonation to other explosives and which contains a detonator.

Circuit breaker means a device designed to open and close a circuit by nonautomatic means and to open the circuit automatically on a predetermined overcurrent setting without injury to itself when properly applied within its rating.

Combustible means capable of being ignited and consumed by fire.

Combustible material means a material that, in the form in which it is used and under the conditions anticipated, will ignite, burn, support combustion or release flammable vapors when subjected to fire or heat. Wood, paper, rubber, and plastics are examples of combustible materials.

Company official means a member of the company supervisory or technical staff.

Competent person means a person having abilities and experience that fully qualify him to perform the duty to which he is assigned.

Conductor means a material, usually in the form of a wire, cable, or bus bar, capable of carrying an electric current.

Delay connector means a nonelectric short interval delay device for use in delaying blasts which are initiated by detonating cord.

Detonating cord means a flexible cord containing a solid core of high explosives.

Detonator means any device containing a detonating charge that is used to initiate an explosive and includes but is not limited to blasting caps, electric blasting caps and non-electric instantaneous or delay blasting caps.

Distribution box means a portable apparatus with an enclosure through which an electric circuit is carried to one or more cables from a single incoming feed line; each cable circuit being connected through individual overcurrent protective devices.

Electric blasting cap means a detonator designed for and capable of being initiated by means of an electric current.

Electrical grounding means to connect with the ground to make the earth part of the circuit.

Employee means a person who works for wages or salary in the service of an employer.

Employer means a person or organization which hires one or more persons to work for wages or salary.

Emulsion means an explosive material containing substantial amounts of oxidizers dissolved in water droplets, surrounded by an immiscible fuel.

Escapeway means a passageway by which persons may leave a mine.

Explosive means any substance classified as an explosive by the Department of Transportation in 49 CFR 173.53, 173.88 and 173.100 which are incorporated by reference. Title 49 CFR is available for inspection at each Metal and Nonmetal Mine Safety and Health District Office of the Mine Safety and Health Administration, and may be obtained from the U.S. Government Printing Office, Washington, DC 20402.

Face or bank means that part of any mine where excavating is progressing or was last done.

Fire resistance rating means the time, in minutes or hours, that an assembly of materials will retain its protective characteristics or structural integrity upon exposure to fire.

Flame spread rating means the numerical designation that indicates the extent flame will spread over the surface of a material during a specified period of time.

Flammable means capable of being easily ignited and of burning rapidly.
Flammable gas means a gas that will burn in the normal concentrations of oxygen in the air.

Flammable liquid a liquid that has a flash point below 100 °F (37.8 °C), a vapor pressure not exceeding 40 pounds per square inch (absolute) at 100 °F (37.8 °C), and is known as a Class I liquid.

Flash point means the minimum temperature at which sufficient vapor is released by a liquid or solid to form a flammable vapor-air mixture at atmospheric pressure.

Geological area means an area characterized by the presence of the same ore bodies, the same stratigraphic sequence of beds, or the same ore-bearing geological formation.

Highway means any public street, public alley or public road.

High potential means more than 650 volts.

Hoist means a power driven windlass or drum used for raising ore, rock, or other material from a mine, and for lowering or raising persons and material.
Igniter cord means a fuse, cordlike in appearance, which burns progressively along its length with an external flame at the zone of burning, and is used for lighting a series of safety fuses in the desired sequence.

Insulated means separated from other conducting surfaces by a dielectric substance permanently offering a high resistance to the passage of current and to disruptive discharge through the substance. When any substance is said to be insulated, it is understood to be insulated in a manner suitable for the conditions to which it is subjected. Otherwise, it is, within the purpose of this definition, uninsulated. Insulating covering is one means for making the conductor insulated.

Insulation means a dielectric substance offering a high resistance to the passage of current and to a disruptive discharge through the substance.

Laminated partition a partition composed of the following material and minimum nominal dimensions: \1/2\-inch-thick plywood, \1/2\-inch- thick gypsum wallboard, \1/8\-inch-thick low carbon steel, and \1/4\- inch-thick plywood, bonded together in that order (IME-22 Box). A laminated partition also includes alternative construction materials described in the Institute of Makers of Explosives (IME) Safety Library Publication No. 22, ``Recommendations for the Safe Transportation of Detonators in a Vehicle with other Explosive Materials," (May 1993), and the ``Generic Loading Guide for the IME-22 Container," (October 1993). This incorporation by reference has been approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies are available at MSHA, 1100 Wilson Blvd., Room 2436, Arlington, Virginia 22209-3939, and at all Metal and Nonmetal Mine Safety and Health district offices, or available for inspection at the Office of the Federal Register, 800 North Capitol Street, NW., 7th Floor, suite 700, Washington, DC.

Lay means the distance parallel to the axis of the rope in which a strand makes one complete turn about the axis of the rope.

Loading means placing explosive material either in a blasthole or against the material to be blasted.

Low potential means 650 volts or less.

Magazine means a facility for the storage of explosives, blasting agents, or detonators.

Main fan means a fan that controls the entire airflow of the mine, or the airflow of one of the major air circuits.

Major electrical installation means an assemblage of stationary electrical equipment for the generation, transmission, distribution, or conversion of electrical power.

Mantrip means a trip on which persons are transported to and from a work area.

Mill includes any ore mill, sampling works, concentrator, and any crushing, grinding, or screening plant used at, and in connection with, an excavation or mine.

Mine atmosphere means any point at least 12 inches away from the back, face, rib, and floor in any mine; and additionally, in a Category IV mine, at least 3 feet laterally away from the collar of a borehole which releases gas into a mine.

Mine opening means any opening or entrance from the surface into a mine.

Misfire means the complete or partial failure of a blasting charge to explode as planned.

Mobile equipment means wheeled, skid-mounted, track-mounted, or rail-mounted equipment capable of moving or being moved.

Multipurpose dry-chemical fire extinguisher means an extinguisher having a rating of at least 2-A:10-B:C and containing a nominal 4.5 pounds or more of dry-chemical agent.

Noncombustible material means a material that, in the form in which it is used and under the conditions anticipated, will not ignite, burn, support combustion, or release flammable vapors when subjected to fire or heat. Concrete, masonry block, brick, and steel are examples of noncombustible materials.

Non-electric delay blasting cap means a detonator with an integral delay element and capable of being initiated by miniaturized detonating cord.

Outburst means the sudden, violent release of solids and high-pressure occluded gases, including methane in a domal salt mine.

Overburden means material of any nature, consolidated or unconsolidated, that overlies a deposit of useful materials or ores that are to be mined.

Overload means that current which will cause an excessive or dangerous temperature in the conductor or conductor insulation.

Permissible means a machine, material, apparatus, or device which has been investigated, tested, and approved by the Bureau of Mines or the Mine Safety and Health Administration, and is maintained in permissible condition.

Potable water means water which shall meet the applicable minimum health requirements for drinking water established by the State or community in which the mine is located or by the Environmental Protection Agency in 40 CFR part 141, pages 169-182 revised as of July 1, 1977. Where no such requirements are applicable, the drinking water provided shall conform with the Public Health Service Drinking Water Standards, 42 CFR part 72, subpart J, pages 527-533, revised as of October 1, 1976. Publications to which references are made in this definition are hereby made a part hereof. These incorporated publications are available for inspection at each Metal and Nonmetal Mine Safety and Health District Office of the Mine Safety and Health Administration.

Powder chest means a substantial, nonconductive portable container equipped with a lid and used at blasting sites for explosives other than blasting agents.

Primer means a unit, package, or cartridge of explosives used to initiate other explosives or blasting agents, and which contains a detonator.

Reverse-current protection means a method or device used on direct-current circuits or equipment to prevent the flow of current in a reverse direction.

Rock burst means a sudden and violent failure of overstressed rock resulting in the instantaneous release of large amounts of accumulated energy. Rock burst does not include a burst resulting from pressurized mine gases.

Rock fixture means any tensioned or nontensioned device or material inserted into the ground to strengthen or support the ground.

Roll protection means a framework, safety canopy or similar protection for the operator when equipment overturns.

Safety can means an approved container, of not over 5 gallons capacity, having a spring-closing lid and spout cover.

Safety fuse means a flexible cord containing an internal burning medium by which fire is conveyed at a continuous and uniform rate for the purpose of firing blasting caps or a black powder charge.

Safety switch means a sectionalizing switch that also provides shunt protection in blasting circuits between the blasting switch and the shot area.

Scaling means removal of insecure material from a face or highwall.

Secondary safety connection means a second connection between a conveyance and rope, intended to prevent the conveyance from running away or falling in the event the primary connection fails.

Shaft means a vertical or inclined shaft, a slope, incline, or winze.

Short circuit means an abnormal connection of relatively low resistance, whether made accidentally or intentionally, between two points of difference potential in a circuit.

Slurry (as applied to blasting). See ``Water gel."

Storage facility means the entire class of structures used to store explosive materials. A ``storage facility" used to store blasting agents corresponds to a BATF Type 4 or 5 storage facility.

Storage tank means a container exceeding 60 gallons in capacity used for the storage of flammable or combustible liquids.

Stray current means that portion of a total electric current that flows through paths other than the intended circuit.

Substantial construction means construction of such strength, material, and workmanship that the object will withstand all reasonable shock, wear, and usage to which it will be subjected.

Suitable means that which fits, and has the qualities or qualifications to meet a given purpose, occasion, condition, function, or circumstance.

Travelway means a passage, walk or way regularly used and designated for persons to go from one place to another.

Water gel or Slurry (as applied to blasting) means an explosive or blasting agent containing substantial portions of water.

Wet drilling means the continuous application of water through the central hole of hollow drill steel to the bottom of the drill hole.

Working level (WL) means any combination of the short-lived radon daughters in one liter of air that will result in ultimate emission of 1.3x10\5\ MeV (million electron volts) of potential alpha energy, and exposure to these radon daughters over a period of time is expressed in terms of ``working level months" (WLM). Inhalation of air containing a radon daughter concentration of 1 WL for 173 hours results in an exposure of 1 WLM."

Working place means any place in or about a mine where work is being performed.

PROCEDURES

30 CFR § 57.1000

Notification of commencement of operations and closing of mines.

PROCEDURES

The owner, operator, or person in charge of any metal and nonmetal mine shall notify the nearest Mine Safety and Health Administration Metal and Nonmental Mine Safety and Health District Office before starting operations, of the approximate or actual date mine operation will commence. The notification shall include the mine name, location, the company name, mailing address, person in

charge, and whether operations will be continuous or intermittent. When any mine is closed, the person in charge shall notify the nearest subdistrict office as provided above and indicate whether the closure is temporary or permanent.

Subpart B--Ground Control

30 CFR § 57.3000

Definitions.

The following definitions apply in this subpart.

Rock burst. A sudden and violent failure of overstressed rock resulting in the instantaneous release of large amounts of accumulated energy. Rock burst does not include a burst resulting from pressurized mine gases.

Travelway. A passage, walk, or haulageway regularly used or designated for persons to go from one place to another.

SCALING AND SUPPORT--SURFACE AND UNDERGROUND

30 CFR § 57.3200

Correction of Hazardous conditions.

Scaling and Support--Surface and Underground
Ground conditions that create a hazard to persons shall be taken down or supported before other work or travel is permitted in the affected area. Until corrective work is completed, the area shall be posted with a warning against entry and, when left unattended, a barrier shall be installed to impede unauthorized entry.
For further information: See MSHA's Program Policy Manual

30 CFR § 57.3201

Location for performing scaling.

Scaling shall be performed from a location which will not expose persons to injury from falling material, or other protection from falling material shall be provided.

30 CFR § 57.3202

Scaling tools.

Where manual scaling is performed, a scaling bar shall be provided. This bar shall be of a length and design that will allow the removal of loose material without exposing the person performing the work to injury.

30 CFR § 57.3203

Rock fixtures.

(a) When rock bolts and accessories addressed in ASTM F432-83, "Standard Specification for Roof and Rock Bolts and Accessories", are used for ground support, the mine operator shall--

(1) Obtain a manufacturer's certification that the material was manufactured and tested in accordance with the specifications of ASTM F432-83; and,

(2) Make this certification available to an authorized representative of the Secretary.

(b) Fixtures and accessories not addressed in ASTM F432-83 may be used for ground support provided they--

(1) Have been successful in supporting the ground in an area with similar strata, opening dimensions and ground stresses in any mine; or

(2) Have been tested and shown to be effective in supporting ground in an area of the affected mine which has similar strata, opening dimensions, and ground stresses as the area where the fixtures are expected to be used. During the test process, access to the test area shall be limited to persons necessary to conduct the test.

(c) Bearing plates shall be used with fixtures when necessary for effective ground support.

(d) The diameter of finishing bits shall be within a tolerance of plus or minus 0.030 inch of the manufacturer's recommended hole diameter for the anchor used. When separate finishing bits are used, they shall be distinguishable from other bits.

(e) Damaged or deteriorated cartridges of grouting material shall not be used.

(f) When rock bolts tensioned by torquing are used as a means of ground support,

(1) Selected tension level shall be--

(i) At least 50 percent of either the yield point of the bolt or anchorage capacity of the rock, whichever is less; and

(ii) No greater than the yield point of the bolt or anchorage capacity of the rock.

(2) The torque of the first bolt, every tenth bolt, and the last bolt installed in each work area during the shift shall be accurately determined immediately after installation. If the torque of any fixture tested does not fall within the installation torque range, corrective action shall be taken.

(g) When grouted fixtures can be tested by applying torque, the first fixture installed in each work place shall be tested to withstand 150 foot-pounds of torque. Should it rotate in the hole, a second fixture shall be tested in the same manner. If the second fixture also turns, corrective action shall be taken.

(h) When other tensioned and nontensioned fixtures are used, test methods shall be established and used to verify their effectiveness.

(i) The mine operator shall certify that tests were conducted and make the certification available to an authorized representative of the Secretary.

[51 FR 36198, Oct. 8, 1986, as amended at 51 FR 36804, Oct. 16, 1986]

For further information: See MSHA's Program Policy Manual

SCALING AND SUPPORT--UNDERGROUND ONLY

30 CFR § 57.3360

Ground support use.

SCALING AND SUPPORT--UNDERGROUND ONLY

Ground support shall be used where ground conditions, or mining experience in similar ground conditions in the mine, indicate that it is necessary. When ground support is necessary, the support system shall be designed, installed, and maintained to control the ground in places where persons work or travel in performing their assigned tasks. Damaged, loosened, or dislodged timber use for ground support which creates a hazard to persons shall be repaired or replaced prior to any work or travel in the affected area.

PRECAUTIONS--SURFACE AND UNDERGROUND

30 CFR § 57.3400

Secondary breakage.

Precautions--Surface and Underground

Prior to secondary breakage operations, the material to be broken, other than hanging material, shall be positioned or blocked to prevent movement which would endanger persons in the work area. Secondary breakage shall be performed from a location which would not expose persons to danger.

30 CFR § 57.3401 Examination of ground conditions.

Persons experienced in examining and testing for loose ground shall be designated by the mine operator. Appropriate supervisors or other designated persons shall examine and, where applicable, test ground conditions in areas where work is to be performed, prior to work commencing, after blasting, and as ground conditions warrant during the work shift. Underground haulageways and travelways and surface area highwalls and banks adjoining travelways shall be examined weekly or more often if changing ground conditions warrant.

For further information: See MSHA's Program Policy Manual

PRECAUTIONS SURFACE—ONLY

30 CFR § 57.3430

Activity between machinery or equipment and the highwall or bank.

Precautions--Surface Only

Persons shall not work or travel between machinery or equipment and the highwall or bank where the machinery or equipment may hinder escape from falls or slides of the highwall or bank. Travel is permitted when necessary for persons to dismount.

For further information: See MSHA's Program Policy Manual

PRECAUTIONS--UNDERGROUND ONLY

30 CFR § 57.3460

Maintenance between machinery or equipment and ribs.

Precautions--Underground Only

Persons shall not perform maintenance work between machinery or equipment and ribs unless the area has been tested and, when necessary, secured.

30 CFR § 57.3461

Rock bursts.

(a) Operators of mines which have experienced a rock burst shall

(1) Within twenty four hours report to the nearest MSHA office each rock burst which:

(i) Causes persons to be withdrawn;

(ii) Impairs ventilation;

(iii) Impedes passage; or

(iv) Disrupts mining activity for more than one hour.

(2) Develop and implement a rock burst control plan within 90 days after a rock burst has been experienced.

(b) The plan shall include--

(1) Mining and operating procedures designed to reduce the occurrence of rock bursts;

(2) Monitoring procedures where detection methods are used; and

(3) Other measures to minimize exposure of persons to areas which are prone to rock bursts.

(c) The plan shall be updated as conditions warrant.

(d) The plan shall be available to an authorized representative of the Secretary and to miners or their representatives.

Subpart C--Fire Prevention and Control

Authority: § 101, Federal Mine Safety and Health Act of 1977, Pub. L. 91-173 as amended by Pub. L. 95-164, 91 Stat. 1291 (30 U.S.C. 811).

For further information: See MSHA's Program Policy Manual

Subpart C-- Fire Prevention And Control

30 CFR § 57.4000 Definitions.

The following definitions apply in this subpart.

Combustible liquids. Liquids having a flash point at or above 100°F (37.8 °C). They are divided into the following classes:

Class II liquids--those having flash points at or above 100 °F (37.8 °C) and below 140 °F (60 °C).

Class IIIA liquids--those having flash points at or above 140 °F (60 °C) and below 200 °F (93.4 °C).

Class IIIB--liquids those having flash points at or above 200 °F (93.4 °C).

Escapeway. A designated passageway by which persons can leave an underground mine.

Flash point. The minimum temperature at which sufficient vapor is released by

a liquid to form a flammable vapor-air mixture near the surface of the liquid.

Main fan. A fan that controls the entire airflow of an underground mine or the airflow of one of the major air circuits of the mine.

Mine opening. Any opening or entrance from the surface into an underground mine.

Safety can. A container of not over five gallons capacity that is designed to safely relieve internal pressure when exposed to heat and has a spring-closing lid and spout cover.

30 CFR § 57.4011

Abandoned electric circuits.

Abandoned electric circuits shall be deenergized and isolated so that they cannot become energized inadvertently.

30 CFR § 57.4057

Underground trailing cables.

Underground trailing cables shall be accepted or approved by MSHA as flame resistant.

[50 FR 4082, Jan. 29, 1985; 50 FR 20100, May 14, 1985; 57 FR 61223, Dec. 23, 1992]

For further information: See MSHA's Program Policy Manual

PROHIBITIONS/PRECAUTIONS/HOUSEKEEPING

30 CFR § 57.4100

Smoking and use of open flames.

PROHIBITIONS/PRECAUTIONS/HOUSEKEEPING

No person shall smoke or use an open flame where flammable or combustible liquids, including greases, or flammable gases are--

(a) Used or transported in a manner that could create a fire hazard; or

(b) Stored or handled.

30 CFR § 57.4101

Warning signs.

Readily visible signs prohibiting smoking and open flames shall be posted where a fire or explosion hazard exists.

30 CFR § 57.4102

Spillage and leakage.

Flammable or combustible liquid spillage or leakage shall be removed in a timely manner or controlled to prevent a fire hazard.

30 CFR § 57.4103

Fueling internal combustion engines.

Internal combustion engines shall be switched off before refueling if the fuel tanks are integral parts of the equipment. This standard does not apply to diesel-powered equipment.

30 CFR § 57.4104

Combustible waste.

(a) Waste materials, including liquids, shall not accumulate in quantities that could create a fire hazard.

(b) Waste or rags containing flammable or combustible liquids that could create a fire hazard shall be placed in the following containers until disposed of properly:

(1) Underground--covered metal containers.

(2) On the surface--covered metal containers or equivalent containers with flame containment characteristics.

30 CFR § 57.4130

Surface electric substations and liquid storage facilities.

The requirements of this standard apply to surface areas only.

(a) If a hazard to persons could be created, no combustible materials shall be stored or allowed to accumulate within 25 feet of the following:

(1) Electric substations.

(2) Unburied, flammable or combustible liquid storage tanks.

(3) Any group of containers used for storage of more than 60 gallons of flammable or combustible liquids.

(b) The area within the 25-foot perimeter shall be kept free of dry vegetation.

30 CFR § 57.4131

Surface fan installations and mine openings.

(a) On the surface, no more than one day's supply of combustible materials shall be stored within 100 feet of mine openings or within 100 feet of fan installations used for underground ventilation.

(b) the one-day supply shall be kept at least 25 feet away from any mine opening except during transit into the mine.

(c) Dry vegetation shall not be permitted within 25 feet of mine openings.

30 CFR § 57.4160

Underground electric substations and liquid storage facilities.

The requirements of this standard apply to underground areas only.

(a) Areas within 25 feet of the following shall be free of combustible materials:

(1) Electric substations.

(2) Unburied, combustible liquid storage tanks.

(3) Any group of containers used for storage of more than 60 gallons of combustible liquids.

(b) This standard does not apply to installed wiring or timber that is coated with at least one inch of shotcrete, one-half inch of gunite, or other noncombustible materials with equivalent fire protection characteristics.

30 CFR § 57.4161

Use of fire underground.

Fires shall not be lit underground, except for open-flame torches. Torches shall be attended at all times while lit.

FIREFIGHTING EQUIPMENT

30 CFR § 57.4200

General requirements.

FIREFIGHTING EQUIPMENT

(a) For fighting fires that could endanger persons, each mine shall have--

(1) Onsite firefighting equipment for fighting fires in their early stages; and

(2) Onsite firefighting equipment for fighting fires beyond their early stages, or the mine shall have made prior arrangements with a local fire department to fight such fires.

(b) This onsite firefighting equipment shall be--

(1) Of the type, size, and quantity that can extinguish fires of any class which would occur as a result of the hazards present; and

(2) Strategically located, readily accessible, plainly marked, and maintained in fire-ready condition.

[50 FR 4082, Jan. 29, 1985, as amended at 50 FR 20100, May 14, 1985]

30 CFR § 57.4201

Inspection.

(a) Firefighting equipment shall be inspected according to the following schedules:

(1) Fire extinguishers shall be inspected visually at least once a month to determine that they are fully charged and operable.

(2) At least once every twelve months, maintenance checks shall be made of mechanical parts, the amount and condition of extinguishing agent and expellant, and the condition of the hose, nozzle, and vessel to determine that the fire extinguishers will operate effectively.

(3) Fire extinguishers shall be hydrostatically tested according to Table C-1 or a schedule based on the manufacturer's specifications to determine the integrity of extinguishing agent vessels.

(4) Water pipes, valves, outlets, hydrants, and hoses that are part of the mine's firefighting system shall be visually inspected at least once every three months for damage or deterioration and use-tested at least once every twelve months to determine that they remain functional.

(5) Fire suppression systems shall be inspected at least once every twelve months. An inspection schedule based on the manufacturer's specifications or the equivalent shall be established for individual components of a system and followed to determine that the system remains functional. Surface fire suppression systems are exempt from these inspection requirements if the systems are used solely for the protection of property and no persons would be affected by a fire.

(b) At the completion of each inspection or test required by this standard, the person making the inspection or test shall certify that the inspection or test has been made and the date on which it was made. Certifications of hydrostatic testing shall be retained until the fire extinguisher is retested or permanently removed from service. Other certifications shall be retained for one year.

Table C-1--Hydrostatic Test Intervals
for Fire Extinguishers

Extinguisher type	Test interval (years)
Soda Acid	5
Cartridge-Operated Water and/or Antifreeze	5
Wetting Agent	5
Foam	5
AFFF (Aqueous Film Forming Foam)	5
Loaded Stream	5
Dry-Chemical with Stainless Steel Shells	5
Carbon Dioxide	5
Dry-Chemical, Stored Pressure, with Mild Steel Shells, Brazed Brass Shells, or Aluminum Shells	12
Dry-Chemical, Cartridge or Cylinder Operated, with Mild Steel Shells	12
Bromotrifluoromethane-Halon 1301	12
Bromochlorodifluoromethane-Halon 1211	12
Dry-Powder, Cartridge or Cylinder-Operated, with Mild Steel Shells1	12

1 Except for stainless steel and steel used for compressed gas cylinders, all other steel shells are defined as "mild steel" shells.

30 CFR § 57.4202

Fire hydrants.

If fire hydrants are part of the mine's firefighting system, the hydrants shall be provided with--

(a) Uniform fittings or readily available adapters for onsite firefighting equipment;

(b) Readily available wrenches or keys to open the valves; and

(c) Readily available adapters capable of connecting hydrant fittings to the hose equipment of any firefighting organization relied upon by the mine.

30 CFR § 57.4203

Extinguisher recharging or replacement.

Fire extinguishers shall be recharged or replaced with a fully charged extinguisher promptly after any discharge.

30 CFR § 57.4230

Surface self-propelled equipment.

(a)(1) Whenever a fire or its effects could impede escape from self-propelled equipment, a fire extinguisher shall be on the equipment.

(2) Whenever a fire or its effects would not impede escape from the equipment but could affect the escape of other persons in the area, a fire extinguisher shall be on the equipment or within 100 feet of the equipment.

(b) A fire suppression system may be used as an alternative to fire extinguishers if the system can be manually activated.

(c) Fire extinguishers or fire suppression systems shall be of a type and size that can extinguish fires of any class in their early stages which could originate from the equipment's inherent fire hazards. Fire extinguishers or manual actuators for the suppression system shall be located to permit their use by persons whose escape could be impeded by fire.

30 CFR § 57.4260 Underground self-propelled equipment.

(a) Whenever self-propelled equipment is used underground, a fire extinguisher shall be on the equipment. This standard does not apply to compressed-air powered equipment without inherent fire hazards.

(b) A fire suppression system may be used as an alternative to fire extinguishers if the system can be manually actuated.

(c) Fire extinguishers or fire suppression systems shall be of a type and size that can extinguish fires of any class in their early stages which could originate from the equipment's inherent fire hazards. The fire extinguishers or the manual actuator for the suppression system shall be readily accessible to the equipment operator.

30 CFR § 57.4261

Shaft-station waterlines.

Waterline outlets that are located at underground shaft stations and are part of the mine's fire protection system shall have at least one fitting located for, and capable of, immediate connection to firefighting equipment.

30 CFR § 57.4262

Underground transformer stations, combustible liquid storage and dispensing areas, pump rooms, compressor rooms, and hoist rooms.

Transformer stations, storage and dispensing areas for combustible liquids, pump rooms, compressor rooms, and hoist rooms shall be provided with fire protection of a type, size, and quantity that can extinguish fires of any class in their early stages which could occur as a result of the hazards present.

30 CFR § 57.4263

Underground belt conveyors.

Fire protection shall be provided at the head, tail, drive, and take-up pulleys of underground belt conveyors. Provisions shall be made for extinguishing fires along the beltline. Fire protection shall be of a type, size, and quantity that can extinguish fires of any class in their early stages which could occur as a result of the fire hazards present.

FIREFIGHTING PROCEDURES/ALARMS/DRILLS

30 CFR § 57.4330

Surface firefighting, evacuation, and rescue procedures.

FIREFIGHTING PROCEDURES/ALARMS/DRILLS

(a) Mine operators shall establish emergency firefighting, evacuation, and rescue procedures for the surface portions of their operations. These procedures shall be coordinated in advance with available firefighting organizations.

(b) Fire alarm procedures or systems shall be established to promptly warn every person who could be endangered by a fire.

(c) Fire alarm systems shall be maintained in operable condition.

30 CFR § 57.4331

Surface firefighting drills.

Emergency firefighting drills shall be held at least once every six months for persons assigned surface firefighting responsibilities by the mine operator.

30 CFR § 57.4360

Underground alarm systems.

(a) Fire alarm systems capable of promptly warning every person underground, except as provided in paragraph (b), shall be provided and maintained in operating condition.

(b) If persons are assigned to work areas beyond the warning capabilities of the system, provisions shall be made to alert them in a manner to provide for their safe evacuation in the event of a fire.

30 CFR § 57.4361

Underground evacuation drills.

(a) At least once every six months, mine evacuation drills shall be held to assess the ability of all persons underground to reach the surface or other designated points of safety within the time limits of the self-rescue devices that would be used during an actual emergency.

(b) The evacuation drills shall--

(1) Be held for each shift at some time other than a shift change and involve all persons underground;

(2) Involve activation of the fire alarm system; and

(3) Include evacuation of all persons from their work areas to the surface or to designated central evacuation points.

(c) At the completion of each drill, the mine operator shall certify the date and the time the evacuation began and ended. Certifications shall be retained for at least one year after each drill.

30 CFR § 57.4362

Underground rescue and firefighting operations.

Following evacuation of a mine in a fire emergency, only persons wearing and trained in the use of mine rescue apparatus shall participate in rescue and firefighting operations in advance of the fresh air base.

30 CFR § 57.4363

Underground evacuation instruction.

(a) At least once every twelve months, all persons who work underground shall be instructed in the escape and evacuation plans and procedures and fire warning signals in effect at the mine.

(b) Whenever a change is made in escape and evacuation plans and procedures for any area of the mine, all persons affected shall be instructed in the new plans or procedures.

(c) Whenever persons are assigned to work in areas other than their regularly assigned areas, they shall be instructed about the escapeway for that area at the time of such assignment. However, persons who normally work in more than one area of the mine shall be instructed at least once every twelve months about the location of escapeways for all areas of the mine in which they normally work or travel.

(d) At the completion of any instruction given under this standard, the mine operator shall certify the date that the instruction was given. Certifications shall be retained for at least one year.

FLAMMABLE AND COMBUSTIBLE LIQUIDS AND GASES

30 CFR § 57.4400

Use restrictions.

FLAMMABLE AND COMBUSTIBLE LIQUIDS AND GASES

(a) Flammable liquids shall not be used for cleaning.

(b) Solvents shall not be used near an open flame or other ignition source, near any source of heat, or in an atmosphere that can elevate the temperature of the solvent above the flash point.

30 CFR § 57.4401

Storage tank foundations.

Fixed, unburied, flammable or combustible liquid storage tanks shall be securely mounted on firm foundations. Piping shall be provided with flexible connections or other special fittings where necessary to prevent leaks caused by tanks settling.

30 CFR § 57.4402

Safety can use.

Small quantities of flammable liquids drawn from storage shall be kept in safety cans labeled to indicate the contents.

30 CFR § 57.4430

Surface storage facilities.

The requirements of this standard apply to surface areas only.

(a) Storage tanks for flammable or combustible liquids shall be--

(1) Capable of withstanding working pressures and stresses and compatible with the type of liquid stored;

(2) Maintained in a manner that prevents leakage;

(3) Isolated or separated from ignition sources to prevent fire or explosion; and

(4) Vented or otherwise constructed to prevent development of pressure or vacuum as a result of filling, emptying, or atmospheric temperature changes. Vents for storage of Class I, II, or IIIA liquids shall be isolated or separated from ignition sources. These pressure relief requirements do not apply to tanks used for storage of Class IIIB liquids that are larger than 12,000 gallons in capacity.

(b) All piping, valves, and fittings shall be--

(1) Capable of withstanding working pressures and stresses;

(2) Compatible with the type of liquid stored; and

(3) Maintained in a manner that prevents leakage.

(c) Fixed, unburied tanks located where escaping liquid could present a hazard to persons shall be provided with--

(1) Containment for the entire capacity of the largest tank; or

(2) Drainage to a remote impoundment area that does not endanger persons. However, storage of only Class IIIB liquids does not require containment or drainage to remote impoundment.

30 CFR § 57.4431

Surface storage restrictions.

(a) On the surface, no unburied flammable or combustible liquids or flammable gases shall be stored within 100 feet of the following:

(1) Mine openings or structures attached to mine openings.

(2) Fan installations for underground ventilation.

(3) Hoist houses.

(b) Under this standard, the following may be present in the hoist house in quantities necessary for the day-to-day maintenance of the hoist machinery:

(1) Flammable liquids in safety cans or in other containers placed in tightly closed cabinets. The safety cans and cabinets shall be kept away from any heat source, and each cabinet shall be labeled "flammables."

(2) Combustible liquids in closed containers. The cointainers shall be kept away from any heat source and the hoist operator's work station.

30 CFR § 57.4460

Storage of flammable liquids underground.

(a) Flammable liquids shall not be stored underground, except--

(1) Small quantities stored in tightly closed cabinets away from any heat source. The small quantities shall be stored in safety cans or in non-glass containers of a capacity equal to or less than a safety can. Each cabinet shall be labeled "flammables."

(2) Acetylene and liquefied petroleum gases stored in containers designed for that specific purpose.

(b) Gasoline shall not be stored underground in any quantity. See MSHA's Program Policy Manual

30 CFR § 57.4461

Gasoline use restrictions underground.

If gasoline is used underground to power internal combustion engines-

(a) The mine shall be nongassy and shall have multiple horizontal or inclined roadways from the surface large enough to accommodate vehicular traffic;

(b) All roadways and other openings shall connect with another opening every 100 feet by a passage large enough to accommodate any vehicle in the mine or alternate routes shall provide equivalent escape capabilities; and

(c) No roadway or other opening shall be supported or lined with wood or other combustible materials.

30 CFR § 57.4462

Storage of combustible liquids underground.

The requirements of this standard apply to underground areas only.

(a) Combustible liquids, including oil or grease, shall be stored in non-glass containers or storage tanks. The containers or storage tanks shall be--

(1) Capable of withstanding working pressures and stresses and compatible with the type of liquid stored;

(2) Maintained in a manner that prevents leakage;

(3) Located in areas free of combustible materials or in areas where any exposed combustible materials are coated with one inch of shotcrete, one-half inch of gunite, or other noncombustible material with equivalent fire protection characteristics; and

(4) Separated from explosives or blasting agents, shaft stations, and ignition sources including electric equipment that could create sufficient heat or sparks to pose a fire hazard. Separation shall be sufficient to prevent the occurrence or minimize the spread of fire.

(b) Storage tanks shall be vented or otherwise constructed to prevent development of pressure or vacuum as a result of filling, emptying, or atmospheric temperature changes. Vents for storage of Class II or IIIA liquids shall be isolated or separated from ignition sources.

(c) At permanent storage areas for combustible liquids, means shall be provided for confinement or removal of the contents of the largest storage tank in the event of tank rupture.

(d) All piping, valves, and fittings shall be:

(1) Capable of withstanding working pressures and stresses;

(2) Compatible with the type of liquid stored; and

(3) Maintained in a manner which prevents leakage.

30 CFR § 57.4463

Liquefied petroleum gas use underground.

Use of liquefied petroleum gases underground shall be limited to maintenance work.

INSTALLATION/CONSTRUCTION/MAINTENANCE

30 CFR § 57.4500

Heat sources.

INSTALLATION/CONSTRUCTION/MAINTENANCE

Heat sources capable of producing combustion shall be separated from combustible materials if a fire hazard could be created.

30 CFR § 57.4501

Fuel lines.

Fuel lines shall be equipped with valves capable of stopping the flow of fuel at the source and shall be located and maintained to minimize fire hazards. This standard does not apply to fuel lines on self-propelled equipment.

30 CFR § 57.4502

Battery-charging stations.

(a) Battery-charging stations shall be ventilated with a sufficient volume of air to prevent the accumulation of hydrogen gas.

(b) Smoking, use of open flames, or other activities that could create an ignition source shall be prohibited at the battery charging station during battery charging.

(c) Readily visible signs prohibiting smoking or open flames shall be posted at battery-charging stations during battery charging.

30 CFR § 57.4503

Conveyor belt slippage.

(a) Surface belt conveyors within confined areas where evacuation would be restricted in the event of a fire resulting from belt-slippage shall be equipped with a detection system capable of automatically stopping the drive pulley.

(b) Underground belt conveyors shall be equipped with a detection system capable of automatically stopping the drive pulley if slippage could cause ignition of the belt.

(c) A person shall attend the belt at the drive pulley when it is necessary to operate the conveyor while temporarily bypassing the automatic function.

For further information: See MSHA's Program Policy Manual

30 CFR § 57.4504

Fan installations.

(a) Fan houses, fan bulkheads for main and booster fans, and air ducts connecting main fans to underground openings shall be constructed of noncombustible materials.

(b) Areas within 25 feet of main fans or booster fans shall be free of combustible materials, except installed wiring, ground and track support, headframes, and direct-fired heaters. Other timber shall be coated with one inch of shotcrete, one-half inch of gunite, or other noncombustible materials.

30 CFR § 57.4505

Fuel lines to underground areas.

Fuel lines into underground storage or dispensing areas shall be drained at the completion of each transfer of fuel unless the following requirements are met:

(a) The valve at the supply source shall be kept closed when fuel is not being transferred.

(b) The fuel line shall be--

(1) Capable of withstanding working pressures and stresses;

(2) Located to prevent damage; and

(3) Located in areas free of combustible materials or in areas where any exposed combustible materials are coated with one inch of shotcrete, one-half inch of gunite, or other noncombustible material with equivalent fire protection characteristics.

(c) Provisions shall be made for control or containment of the entire volume of the fuel line so that leakage will not create a fire hazard.

30 CFR § 57.4530

Exits for surface buildings and structures.

Surface buildings or structures in which persons work shall have a sufficient number of exits to permit prompt escape in case of fire.

For further information: See MSHA's Program Policy Manual

30 CFR § 57.4531

Surface flammable or combustible liquid storage buildings or rooms.

(a) Surface storage buildings or storage rooms in which flammable or combustible liquids, including grease, are stored and that are within 100 feet of any person's work station shall be ventilated with a sufficient volume of air to prevent the accumulation of flammable vapors.

(b) In addition, the buildings or rooms shall be--

(1) Constructed to meet a fire resistance rating of at least one hour; or

(2) Equipped with an automatic fire supression system; or

(3) Equipped with an early warning fire detection device that will alert any person who could be endangered by a fire, provided that no person's work station is in the building.

(c) Flammable or combustible liquids in use for day-to-day maintenance and operational activities are not considered in storage under this standard.

For further information: See MSHA's Program Policy Manual

30 CFR § 57.4532

Blacksmith shops.

Blacksmith shops located on the surface shall be--

(a) At least 100 feet from fan installations used for intake air and mine openings;

(b) Equipped with exhaust vents over the forge and ventilated to prevent the accumulation of the products of combustion; and

(c) Inspected for smoldering fires at the end of each shift.

30 CFR § 57.4533

Mine opening vicinity.

Surface buildings or other similar structures within 100 feet of mine openings used for intake air or within 100 feet of mine openings that are designated escapeways in exhaust air shall be--

(a) Constructed of noncombustible materials; or

(b) Constructed to meet a fire resistance rating of no less than one hour; or

(c) Provided with an automatic fire suppression system; or

(d) Covered on all combustible interior and exterior structural surfaces with noncombustible material or limited combustible material, such as five-eighth inch, type "X" gypsum wallboard.

For further information: See MSHA's Program Policy Manual

30 CFR § 57.4560

Mine entrances.

For at least 200 feet inside the mine portal or collar timber used for ground support in intake openings and in exhaust openings that are designated as escapeways shall be--

(a) Provided with a fire suppression system, other than fire extinguishers and water hoses, capable of controlling a fire in its early stages; or

(b) Covered with shotcrete, gunite, or other material with equivalent fire protection characteristics; or

(c) Coated with fire-retardant paint or other material to reduce its flame spread rating to 25 or less and maintained in that condition.

[50 FR 4082, Jan. 29, 1985, as amended at 50 FR 20100, May 14, 1985]

For further information: See MSHA's Program Policy Manual

30 CFR § 57.4561

Stationary diesel equipment underground.

Stationary diesel equipment underground shall be--

(a) Supported on a noncombustible base; and

(b) Provided with a thermal sensor that automatically stops the engine if overheating occurs.

WELDING/CUTTING/COMPRESSED GASES

30 CFR § 57.4600

Extinguishing equipment.

WELDING/CUTTING/COMPRESSED GASES

(a) When welding, cutting, soldering, thawing, or bending--

(1) With an electric arc or with an open flame where an electrically conductive extinguishing agent could create an electrical hazard, a multipurpose dry-chemical fire extinguisher or other extinguisher with at least a 2-A:10-B:C rating shall be at the worksite.

(2) With an open flame in an area where no electrical hazard exists, a multipurpose dry-chemical fire extinguisher or equivalent fire extinguishing equipment for the class of fire hazard present shall be at the worksite.

(b) Use of halogenated fire extinguishing agents to meet the requirements of this standard shall be limited to Halon 1211 (CBrClF(sub)2) and Halon 1301

(CBrF(sub)3). When these agents are used in confined or unventilated areas, precautions based on the manufacturer's use instructions shall be taken so that the gases produced by thermal decomposition of the agents are not inhaled.

30 CFR § 57.4601

Oxygen cylinder storage.

Oxygen cylinders shall not be stored in rooms or areas used or designated for storage of flammable or combustible liquids, including grease.

30 CFR § 57.4602

Gauges and regulators.

Gauges and regulators used with oxygen or acetylene cylinders shall be kept clean and free of oil and grease.

30 CFR § 57.4603

Closure of valves.

To prevent accidental release of gases from hoses and torches attached to oxygen and acetylene cylinders or to manifold systems, cylinder or manifold system valves shall be closed when--

(a) The cylinders are moved;

(b) The torch and hoses are left unattended; or

(c) The task or series of tasks is completed.

30 CFR § 57.4604

Preparation of pipelines or containers.

Before welding, cutting, or applying heat with an open flame to pipelines or containers that have contained flammable or combustible liquids, flammable gases, or explosive solids, the pipelines or containers shall be--

(a) Drained, ventilated, and thoroughly cleaned of any residue;

(b) Vented to prevent pressure build-up during the application of heat; and

(c)(1) Filled with an inert gas or water, where compatible; or

(2) Determined to be free of flammable gases by a flammable gas detection device prior to and at frequent intervals during the application of heat.

30 CFR § 57.4660

Work in shafts, raises, or winzes and other activities involving hazard areas.

During performance of an activity underground described in Table C-2 or when falling sparks or hot metal from work performed in a shaft, raise, or winze could pose a fire hazard--

(a) A multipurpose dry-chemical fire extinguisher shall be at the worksite to supplement the fire extinguishing equipment required by §57.4600; and

(b) At least one of the following actions shall be taken:

(1) Wet down the area before and after the operation, taking precaution against any hazard of electrical shock.

(2) Isolate any combustible material with noncombustible material.

(3) Shield the activity so that hot metal and sparks cannot cause a fire.

(4) Provide a second person to watch for and extinguish any fire.

Table C-2

Activity	Distance	Fire hazard
Welding or cutting with an electric arc or open flame	Within 35 feet of--	More than 1 gallon of combustible liquid, unless in a closed, metal container.
Using an open flame to bend or heat materials		More than 50 pounds of non-fire-retardant wood.
Thawing pipes electrically, except with heat tape		More than 10 pounds of combustible plastics.
Soldering or thawing with an open flame	Within 10 feet of--	Materials in a shaft, raise, or winze that could be ignited by hot metal or sparks.

(5) Cover or bulkhead the opening immediately below and adjacent to the activity with noncombustible material to prevent sparks or hot metal from falling down the shaft, raise, or winze. This alternative applies only to activities involving a shaft, raise, or winze.

(c) The affected area shall be inspected during the first hour after the operation is completed. Additional inspections shall be made or other fire prevention measures shall be taken if a fire hazard continues to exist.

VENTILATION CONTROL MEASURES

30 CFR § 57.4760

Shaft mines.

VENTILATION CONTROL MEASURES

(a) Shaft mines shall be provided with at least one of the following means to control the spread of fire, smoke, and toxic gases underground in the event of a fire: control doors, reversal of mechanical ventilaton, or effective evacuation procedures. Under this standard, "shaft mine" means a mine in which any designated escapeway includes a mechanical hoisting device or a ladder ascent.

(1) *Control doors.* If used as an alternative, control doors shall be--

(a)(1)(i) Installed at or near shaft stations of intake shafts and any shaft designated as an escapeway under §57.11053 or at other locations that provide equivalent protection;

(a)(1)(ii) Constructed and maintained according to Table C-3;

(a)(1)(iii) Provided with a means of remote closure at landings of timbered intake shafts unless a person specifically designated to close each door in the event of a fire can reach the door within three minutes;

(a)(1)(iv) Closed or opened only according to predetermined conditions and procedures;

(a)(1)(v) Constructed so that once closed they will not reopen as a result of a differential in air pressure;

(a)(1)(vi) Constructed so that they can be opened from either side by one person, or be provided with a personnel door that can be opened from either side; and

(a)(1)(vii) Clear of obstructions.

(2) *Mechanical ventilation reversal.* If used as an alternative, reversal of mechanical ventilation shall--

(a)(2)(i) Provide at all times at least the same degree of protection to persons underground as would be afforded by the installation of control doors;

(a)(2)(ii) Be accomplished by a main fan. If the main fan is located underground--

(a)(2)(ii)(A) The cable or conductors supplying power to the fan shall be routed through areas free of fire hazards; or

(a)(2)(ii)(B) The main fan shall be equipped with a second, independent power cable or set of conductors from the surface. The power cable or conductors shall be located so that an underground fire disrupting power in one cable or set of conductors will not affect the other; or

(a)(2)(ii)(C) A second fan capable of accomplishing ventilation reversal shall be available for use in the event of failure of the main fan;

(a)(2)(iii) Provide rapid air reversal that allows persons underground time to exit in fresh air by the second escapeway or find a place of refuge; and

(a)(2)(iv) Be done according to predetermined conditions and procedures.

(3) *Evacuation.* If used as an alternative, effective evacuation shall be demonstrated by actual evacuation of all persons underground to the surface in ten minutes or less through routes that will not expose persons to heat, smoke, or toxic fumes in the event of a fire.

(b) If the destruction of any bulkhead on an inactive level would allow fire contaminants to reach an escapeway, that bulkhead shall be constructed and maintained to provide at least the same protection as required for control doors under Table C-3.

TABLE C-3--CONTROL DOOR CONSTRUCTION

Location	Minimum required construction
At least 50 feet from: timbered areas, exposed combustible rock, and any other combustible material[1]	Control door that meets the requirements for a ventilation door in conformance with 30 CFR 57.8531.
Within 50 feet but no closer than 20 feet of: timbered areas, exposed combustible rock, or other combustible material1	Control door that serves as a barrier to the effects of fire and air leakage. The control door shall provide protection at least equivalent to a door constructed of no less than one-quarter inch of plate steel with channel or angle-iron reinforcement to minimize warpage. The framework assembly of the door and the surrounding bulkhead, if any, shall be at least equivalent to the door in fire and air-leakage resistance, and in physical strength.
Within 20 feet of: timbered areas, any timbered areas or combustible rock, provided that the timber and combustible rock within the 20 foot distance are coated with one inch of shotcrete, one-half inch of gunite, or other material with equivalent fire protection characteristics and no other combustible material1 within that distance	Control door that serves as a

exposed combustible rock, or other effects combustible materiall	barrier to fire, the of fire, and air- leakage. The door shall provide protection at least equivalent to a door constructed of two layers of wood, each a minimum of three-quarters of an inch in thickness. The wood grain of one layer shall be perpendicular to the wood grain of the other layer. The wood construction shall be covered on all sides and edges with no less than twenty-four gauge sheet steel. The framework assembly of the door and the surrounding bulkhead, if any, shall be at least equivalent to the door in fire and air-leakage resistance, and in physical strength. Roll-down steel doors with a fire- resistance rating of 1 1/2 hours or greater, but without an insulation core, are acceptable if an automatic sprinkler or deluge system is installed that provides even coverage of the door on both sides.

1 In this table, "combustible material" does not refer to installed wiring or track support.

30 CFR § 57.4761

Underground shops.

To confine or prevent the spread of toxic gases from a fire originating in an underground shop where maintenance work is routinely done on mobile equipment, one of the following measures shall be taken: use of control doors or bulkheads, routing of the mine shop air directly to an exhaust system, reversal of mechanical ventilation, or use of an automatic fire suppression system in conjunction with an alternate escape route. The alternative used shall at all times provide at least the same degree of safety as control doors or bulkheads.

(a) *Control doors or bulkheads.* If used as an alternative, control doors or bulkheads shall meet the following requirements:

(1) Each control door or bulkhead shall be constructed to serve as a barrier to fire, the effects of fire, and air leakage at each opening to the shop.

(2) Each control door shall be--

(a)(2)(i) Constructed so that, once closed, it will not reopen as a result of a differential in air pressure;

(a)(2)(ii) Constructed so that it can be opened from either side by one person or be provided with a personnel door that can be opened from either side;

(a)(2)(iii) Clear of obstructions; and

(a)(2)(iv) Provided with a means of remote or automatic closure unless a person specifically designated to close the door in the event of a fire can reach the door within three minutes.

(3) If located 20 feet or more from exposed timber or other combustible material, the control doors or bulkheads shall provide protection at least equivalent to a door constructed of no less than one-quarter inch of plate steel with channel or angle-iron reinforcement to minimize warpage. The framework assembly of the door and the surrounding bulkhead, if any, shall be at least equivalent to the door in fire and air-leakage resistance, and in physical strength.

(4) If located less than 20 feet from exposed timber or other combustibles, the control door or bulkhead shall provide protection at least equivalent to a door constructed of two layers of wood, each a minimum of three-quarters of an inch in thickness. The wood-grain of one layer shall be perpendicular to the wood-grain of the other layer. The wood construction shall be covered on all sides and edges with no less than 24-gauge sheet steel. The framework assembly of the door and the surrounding bulkhead, if any, shall be at least equivalent to the door in fire and air-leakage resistance, and in physical strength. Roll-down steel doors with a fire-resistance rating of 1 1/2 hours or greater, but without an insulation core, are acceptable provided that an automatic sprinkler or deluge system is installed that provides even coverage of the door on both sides.

(b) *Routing air to exhaust system.* If used as an alternative, routing the mine shop exhaust air directly to an exhaust system shall be done so that no person would be exposed to toxic gases in the event of a shop fire.

(c) *Mechanical ventilation reversal.* If used as an alternative, reversal of mechanical ventilation shall--

(1) Be accomplished by a main fan. If the main fan is located underground:

(c)(1)(i) The cable or conductors supplying power to the fan shall be routed through areas free of fire hazards; or

(c)(1)(ii) The main fan shall be equipped with a second, independent power cable or set of conductors from the surface. The power cable or conductors shall be located so that an underground fire disrupting power in one cable or set of conductors will not affect the other; or

(c)(1)(iii) A second fan capable of accomplishing ventilation reversal shall be available for use in the event of failure of the main fan;

(2) Provide rapid air reversal that allows persons underground time to exit in fresh air by the second escapeway or find a place of refuge; and

(3) Be done according to predetermined conditions and procedures.

(d) *Automatic fire suppression system and escape route.* If used as an alternative, the automatic fire suppression system and alternate escape route shall meet the following requirements:

(1) The suppression system shall be--

(d)(1)(i) Located in the shop area;

(d)(1)(ii) The appropriate size and type for the particular fire hazards involved; and

(d)(1)(iii) Inspected at weekly intervals and properly maintained.

(2) The escape route shall bypasss the shop area so that the route will not be affected by a fire in the shop area.

APPENDIX I TO SUBPART C--NATIONAL CONSENSUS STANDARDS

Mine operators seeking further information in the area of fire prevention and control may consult the following national consensus standards.

MSHA standard	National consensus standard
§§57.4200, 57.4201, 57.4261, and 57.4262.	NFPA No. 10--Portable Fire Extinguisher. NFPA No. 11--Low Expansion Foam and Combined Agent Systems. NFPA No. 11A--High Expansion Foam Systems. NFPA No. 12--Carbon Dioxide Extinguishing Systems. NFPA No. 12A--Halon 1301 Extinguishing Systems. NFPA No. 13--Water Sprinkler Systems. NFPA No. 14--Standpipe and Hose Systems. NFPA No. 15--Water Spray Fixed Systems. NFPA No. 16--Foam Water Spray Systems. NFPA No. 17--Dry-Chemical Extinguishing Systems. NFPA No. 121--Mobile Surface Mining Equipment. NFPA No. 291--Testing and Marking Hydrants. NFPA No. 1962--Care, Use, and Maintenance of Fire Hose, Connections, and Nozzles.
§57.4202	NFPA No. 14--Standpipe and Hose Systems. NFPA No. 291--Testing and Marking Hydrants.
§57.4203	NFPA No. 10--Portable Fire Extinguishers.
§57.4230	NFPA No. 10--Portable Fire Extinguishers. NFPA No. 121--Mobile Surface Mining Equipment.
§57.4260	NFPA No. 10--Portable Fire Extinguishers.
§57.4261	NFPA No. 14--Standpipe and Hose Systems.
§57.4533	NFPA Fire Protection Handbook.
§57.4560	ASTM E-162--Surface Flammability of Materials Using a Radiant Heat Energy Source.

Subpart D-- Air Quality, Radiation, Physical Agents, And Diesel Particulate Matter

AIR QUALITY--SURFACE AND UNDERGROUND

30 CFR § 57.5001

Exposure limits for airborne contaminants.

AIR QUALITY--SURFACE AND UNDERGROUND

Except as permitted by §57.5005--

(a) Except as provided in paragraph (b), the exposure to airborne contaminants shall not exceed, on the basis of a time weighted average, the threshold limit values adopted by the American Conference of Governmental Industrial Hygienists, as set forth and explained in the 1973 edition of the Conference's publication, entitled "TLV's Threshold Limit Values for Chemical Substances in Workroom Air Adopted by ACGIH for 1973," pages 1 through 54, which are hereby incorporated by reference and made a part hereof. This publication may be obtained from the American Conference of Governmental Industrial Hygienists by writing to the Secretary-Treasurer, P.O. Box 1937, Cincinnati, Ohio 45201, or may be examined in any Metal and Nonmetal Mine Safety and Health District Office of the Mine Safety and Health Administration. Excursions above the listed thresholds shall not be of a greater magnitude than is characterized as permissible by the Conference.

(b) The 8-hour time-weighted average airborne concentration of asbestos dust to which employees are exposed shall not exceed 2 fibers per milliliter greater than 5 microns in length, as determined by the membrane filter method at 400-450 magnification (4 millimeter objective) phase contrast illumination. No employees shall be exposed at any time to airborne concentrations of asbestos fibers in excess of 10 fibers longer than 5 micrometers, per milliliter of air, as determined by the membrane filter methods over a minimum sampling time of 15 minutes. "Asbestos" is a generic term for a number of hydrated silicates that, when crushed or processed, separate into flexible fibers made up of fibrils. Although there are many asbestos minerals, the term "asbestos" as used herein is limited to the following minerals: chrysotile, amosite, crocidolite, anthophylite asbestos, tremolite asbestos, and actinolite asbestos.

(c) Employees shall be withdrawn from areas where there is present an airborne contaminant given a "C" designation by the Conference and the concentration exceeds the threshold limit value listed for that contaminant.

[60 FR 35692, July 11, 1995]

For further information: See MSHA's Program Policy Manual

30 CFR § 57.5002

Exposure monitoring.

Dust, gas, mist, and fume surveys shall be conducted as frequently as necessary to determine the adequacy of control measures.

For further information: See MSHA's Program Policy Manual

30 CFR § 57.5005

Control of exposure to airborne contaminants.

Control of employee exposure to harmful airborne contaminants shall be, insofar as feasible, by prevention of contamination, removal by exhaust ventilation, or by dilution with uncontaminated air. However, where accepted engineering control measures have not been developed or when necessary by the nature of work involved (for example, while establishing controls or occasional entry into hazardous atmospheres to perform maintenance or investigation), employees may work for reasonable periods of time in concentrations of airborne contaminants exceeding permissible levels if they are protected by appropriate respiratory protective equipment. Whenever respiratory protective equipment is used a program for selection, maintenance, training, fitting, supervision, cleaning, and use shall meet the following minimum requirements:

(a) Respirators approved by NIOSH under 42 CFR part 84 which are applicable and suitable for the purpose intended shall be furnished and miners shall use the protective equipment in accordance with training and instruction. See MSHA's Program Policy Manual

(b) A respirator program consistent with the requirements of ANSI Z88.2-1969, published by the American National Standards Institute and entitled "American National Standards Practices for Respiratory Protection ANSI Z88.2-1969," approved August 11, 1969, which is hereby incorporated by reference and made a part hereof. This publication may be obtained from the American National Standards Institute, Inc., 1430 Broadway, New York, New York 10018, or may be examined in any Metal and Nonmetal Mine Safety and Health District Office of the Mine Safety and Health Administration.

(c) When respiratory protection is used in atmospheres immediately harmful to life, the presence of at least one other person with backup equipment and rescue capability shall be required in the event of failure of the respiratory equipment. See MSHA's Program Policy Manual

[60 FR 30398, June 8, 1995; 60 FR 33719, June 29, 1995; 60 FR 35692, July 11, 1995]

For further information:<A HREF="/REGS/COMPLIAN/PPM/PMVOL4C.HTM#35> See MSHA's Program Policy Manual

30 CFR § 57.5006

Restricted use of chemicals.

The following chemical substances shall not be used or stored except by competent persons under laboratory conditions approved by a nationally recognized agency acceptable to the Secretary.

(a) Carbon tetrachloride,

(b) Phenol,

(c) 4-Nitrobiphenyl,

(d) Alpha-naphthylamine,

(e) 4,4-Methylene Bis (2-chloroaniline),

(f) Methyl-chloromethyl ether,

(g) 3,3 Dichlorobenzidine,

(h) Bis (chloromethyl) ether,

(i) Beta-napthylamine,

(j) Benzidine,

(k) 4-Aminodiphenyl,

(l) Ethyleneimine,

(m) Beta-propiolactone,

(n) 2-Acetylaminofluorene,

(o) 4-Dimethylaminobenzene, and

(p) N-Nitrosodimethylamine.

AIR QUALITY--UNDERGROUND ONLY

30 CFR § 57.5015

Oxygen deficiency.

Air in all active workings shall contain at least 19.5 volume percent oxygen.

DIESEL PARTICULATE MATTER--UNDERGROUND ONLY

Effective Date Jul. 6, 2005, The authority citation for part 57 continues to read as follows: Authority: 30 U.S.C. 811 and 813. § 57.5062 [Removed] Sections 57.5060, 57.5061, 57.5071, and 57.5075 are revised; and Sections 57.5065, 57.5066, 57.5067, and 57.5070 are republished without change.

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Editorial Note: Based on ***FedReg. Doc. 06-4464***, this section has been changed.
The new version is in **BOLD Maroon**. The old section will remain, pending the next publication of the 30 CFR.
The effective date for this is August 16, 2006.

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Editorial Note: Based on ***FedReg. Doc. 05-10681***, this section has been changed.
The new version is in **BOLD**. The old section will remain, pending the next publication of the 30 CFR.
The effective date for this is July 6, 2005.

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30 CFR § 57.5060 Limit on concentration of diesel particulate matter.

(a) After July 19, 2002 and until January 19, 2006, any mine operator covered by this part must limit the concentration of diesel particulate matter to which miners are exposed in underground areas of a mine by restricting the average eight-hour equivalent full shift airborne concentration of total carbon, where miners normally work or travel, to 400 micrograms per cubic meter of air (400_{TC} $\mu g/m^3$).

(b) After January 19, 2006, any mine operator covered by this part must limit the concentration of diesel particulate matter to which miners are exposed in underground areas of a mine by restricting the average eight-hour equivalent full shift airborne concentration of total carbon, where miners normally work or travel,

to 160 micrograms per cubic meter of air (160TC $\mu g/m^3$).

(c)(1) If, as a result of technological constraints, a mine requires additional time to come into compliance with the limit specified in paragraph (b) of this section, the operator of the mine may file an application with the Secretary for a special extension.

(2) No mine may be granted more than one special extension, nor may the time otherwise available under this section to a mine to comply with the limit specified in paragraph (b) be extended by more than two years.

(3) The application for a special extension may be approved, and the additional time authorized, only if the application includes information adequate for the Secretary to ascertain:

(i) That diesel-powered equipment was used in the mine prior to October 29, 1998;

(ii) That there is no combination of controls that can, due to technological constraints, bring the mine into full compliance with the limit specified in paragraph (b) within the time otherwise specified in this section;

(iii) The lowest achievable concentration of diesel particulate, as demonstrated by data collected under conditions that are representative of mine conditions using the method specified in § 57.5061; and

(iv) The actions the operator will take during the duration of the extension to:

(A) Maintain the lowest concentration of diesel particulate; and

(B) Minimize the exposure of miners to diesel particulate.

(4) The Secretary may approve an application for a special extension only if:

(i) The mine operator files, the application at least 180 days prior to the date the mine must be in full compliance with the limit established by paragraph (b) of this section; and

(ii) The application certifies that the operator has posted one copy of the application, at the mine site for 30 days prior to the date of application, and has provided another copy to the authorized representative of miners.

(5) A mine operator must comply with the terms of any approved application for a special extension, and post a copy of an approved application for a special extension at the mine site for the duration of the special extension period.

(d)(1) Mine operators may permit miners engaged in inspection, maintenance, or repair activities, and only in such activities, with the advance approval of the Secretary under the circumstances and conditions defined in paragraphs (d)(2) through (d)(4) of this section, to work in concentrations of diesel particulate matter exceeding the applicable concentration limit under paragraph (a) or (b) of this section.

(2) The Secretary will only provide advance approval:

(i) For inspection, maintenance or repair activities to be conducted:

(A) In areas where miners work or travel infrequently or for brief periods of time;

(B) In areas where miners otherwise work exclusively inside of enclosed and environmentally controlled cabs, booths and similar structures with filtered breathing air; or

(C) In shafts, inclines, slopes, adits, tunnels and similar workings that the

operator designates as return or exhaust air courses and that miners use for access into the mine or egress from the mine;

(ii) When the Secretary determines that it is not feasible to reduce the concentration of dpm in the areas where the inspection, maintenance or repair activities are to be conducted to those otherwise applicable under paragraph (a) or (b) of this section; and

(iii) When the Secretary determines that the mine operator will employ adequate safeguards to minimize the dpm exposure of the miners.

(3) The Secretary's determinations under paragraph (d)(2) of this section will be based on evaluating a plan prepared and submitted by the operator no less than 60 days before the commencement of any inspection, maintenance or repair activities. The mine operator must certify in the plan that one copy of the application has been posted at the mine site for 30 days prior to the date of submission, and another copy has been provided to the authorized representative of miners. The plan must identify, at a minimum, the types of anticipated inspection, maintenance, and repair activities that must be performed for which engineering controls sufficient to comply with the concentration limit are not feasible, the locations where such activities could take place, the concentration of dpm in these locations, the reasons why engineering controls are not feasible, the anticipated frequency and duration of such activities, the anticipated number of miners involved in such activities, and the safeguards that the operator will employ to limit miner exposure to dpm, including, but not limited to the use of respiratory protective equipment. The approved plan must include a program for selection, maintenance, training, fitting, supervision, cleaning and use of personal protective equipment and must meet the minimum requirements established in § 57.5005(a) and (b).

(4) An advance approval by the Secretary for employees to engage in inspection, maintenance, or repair activities will be valid for no more than one year. A mine operator must comply with the conditions of the approved plan [which was the basis of the approval], and must post a copy of the approved plan at the mine site for the duration of its applicability.

(e) Other than pursuant to the conditions required in paragraphs (c) or (d) of this section, an operator must not utilize personal protective equipment to comply with the requirements of either paragraph (a) or paragraph (b) of this section.

(f) An operator must not utilize administrative controls to comply with the requirements of this section.

§ 57.5060 Limit on exposure to diesel particulate matter.

(a) A miner's personal exposure to diesel particulate matter (DPM) in an underground mine must not exceed an average eight-hour equivalent full shift airborne concentration of 308 micrograms of elemental carbon per cubic meter of air (308_{EC} $\mu g/m^3$). [This interim permissible exposure limit (PEL) remains in effect until the final DPM exposure limit becomes effective. When the final DPM exposure limit becomes effective, MSHA will publish a document in the Federal Register.]

(b) After May 19, 2006, any mine operator covered by this part must limit the concentration of diesel particulate matter to which miners are exposed in underground areas of a mine by restricting the average eight-hour equivalent full shift airborne concentration of total carbon, where miners normally work or travel, to 160 micrograms per cubic meter of air (160_{TC} $\mu g/m^3$).

(b)(1) Effective May 20, 2006, a miner's personal exposure to diesel particulate matter (DPM) in an underground mine must not exceed an average eight-hour equivalent full shift airborne concentration of 308 micrograms of elemental carbon per cubic meter of air (308ECμg/m3).

(2) Effective January 20, 2007, a miner's personal exposure to diesel particulate matter (DPM) in an underground mine must not exceed an average eight-hour equivalent full shift airborne concentration of 350 micrograms of total carbon per cubic meter of air (350TCμg/m3).

(3) Effective May 20, 2008, a miner's personal exposure to diesel particulate matter (DPM) in an underground mine must not exceed an average eight-hour equivalent full shift airborne concentration of 160 micrograms of total carbon per cubic meter of air (160TCμg/ m3).

(c)(1) If a mine requires additional time to come into compliance with the final DPM limit established in § 57.5060 (b) due to technological or economic constraints, the operator of the mine may file an application with the District Manager for a special extension.

(2) The mine operator must certify on the application that the operator has posted one copy of the application at the mine site for at least 30 days prior to the date of application, and has provided another copy to the authorized representative of miners.

(3) No approval of a special extension shall exceed a period of one year from the date of approval. Mine operators may file for additional special extensions provided each extension does not exceed a period of one year. An application must include the following information:

(i) A statement that diesel-powered equipment was used in the mine prior to October 29, 1998;

(ii) Documentation supporting that controls are technologically or economically infeasible at this time to reduce the miner's exposure to the final DPM limit.

(iii) The most recent DPM monitoring results.

(iv) The actions the operator will take during the extension to minimize exposure of miners to DPM.

(4) A mine operator must comply with the terms of any approved application for a special extension, post a copy of the approved application for a special extension at the mine site for the duration of the special extension period, and provide a copy of the approved application to the authorized representative of miners.

(d) The mine operator must install, use, and maintain feasible engineering and administrative controls to reduce a miner's exposure to or below the DPM limit established in this section. When controls do not reduce a miner's DPM exposure to the limit, controls are infeasible, or controls do not produce significant reductions in DPM exposures, controls must be used to reduce the miner's exposure to as low a level as feasible and must be supplemented with respiratory protection in accordance with § 57.5005(a), (b), and paragraphs (d)(1) and (d)(2) of this section.

(d) The mine operator must install, use, and maintain feasible engineering and administrative controls to reduce a miner's exposure to or below the applicable DPM PEL established in this section. When controls do not reduce a miner's DPM exposure to the PEL, controls are infeasible, or controls do not produce significant reductions in DPM exposures, controls must be used to reduce the miner's exposure to as low a level as feasible and must be supplemented with respiratory protection in accordance with §57.5005(a), (b), and paragraphs (d)(1) through (d)(8) of this section.

(1) Air purifying respirators must be equipped with the following:

(i) Filters certified by NIOSH under 30 CFR part 11 (appearing in the July 1, 1994 edition of 30 CFR, parts 1 to 199) as a high efficiency particulate air (HEPA) filter;

(ii) Filters certified by NIOSH under 42 CFR part 84 as 99.97% efficient; or

(iii) Filters certified by NIOSH for DPM.

(2) Non-powered, negative-pressure, air purifying, particulate- filter respirators shall use an R- or P-series filter or any filter certified by NIOSH for DPM. An R-series filter shall not be used for longer than one work shift.

(e) Rotation of miners shall not be considered an acceptable administrative control used for compliance with the DPM standard.

(3) The mine operator must provide a confidential medical evaluation by a physician or other licensed health care professional (PLHCP), at no cost to the miner, to determine the miner's ability to use a respirator before the miner is required to be fit tested or to use a respirator at the mine. If the PLHCP determines that the miner cannot wear a negative pressure respirator, the mine operator must make certain that the PLHCP evaluates the miner's ability to wear a powered air purifying respirator (PAPR).

(4) The mine operator must provide the miner with an opportunity to discuss their evaluation results with the PLHCP before the PLHCP submits the written determination to the mine operator regarding the miner's ability to wear a respirator. If the miner disagrees with the evaluation results of the PLHCP, the miner may submit within 30 days additional evidence of his or her medical condition to the PLHCP.

(5) The mine operator must obtain a written determination from the PLHCP regarding the miner's ability to wear a respirator, and the mine operator must assure that the PLHCP provides a copy of the determination to the miner.

(6) The miner must be reevaluated when the mine operator has reason to believe that conditions have changed which could adversely affect the miner's ability to wear the respirator.

(7) Upon written notification that the PLHCP has determined that the miner is unable to wear a respirator, including a PAPR, the miner must be transferred to work in an existing position in an area of the same mine where respiratory protection is not required. The miner must be transferred within 30 days of the final determination by the PLHCP.

(i) The miner must continue to receive compensation at no less than the regular rate of pay in the classification held by that miner immediately prior to the transfer.

(ii) Increases in wages of the transferred miner must be based upon the new work classification.

(8) The mine operator must maintain a record of the identity of the PLHCP and the most recent written determination of each miner's ability to wear a respirator for the duration of the miner's employment plus six months.

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Editorial Note: Based on *FedReg. Doc. 05-10681*, this section has been changed.
The new version is in **BOLD**. The old section will remain, pending the next publication of the 30 CFR.

The effective date for this is July 6, 2005.

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30 CFR § 57.5061 Compliance determinations.

(a) A single sample collected and analyzed by the Secretary in accordance with the requirements of this section shall be an adequate basis for a determination of noncompliance with an applicable limit on the concentration of diesel particulate matter pursuant to § 57.5060.

(b) The Secretary will collect samples of diesel particulate matter by using a respirable dust sampler equipped with a submicrometer impactor and analyze the samples for the amount of total carbon using the method described in NIOSH Analytical Method 5040, except that the Secretary also may use any methods of collection and analysis subsequently determined by NIOSH to provide equal or improved accuracy for the measurement of diesel particulate matter. Copies of the NIOSH 5040 Analytical Method are available by contacting MSHA's, Pittsburgh Safety and Health Technology Center, P.O. Box 18233, Cochrans Mill Road, Pittsburgh, PA 15236.

(c) The Secretary will determine the appropriate sampling strategy for compliance determination, utilizing personal sampling, occupational sampling, and/or area sampling, based on the circumstances of the particular exposure.

§ 57.5061 Compliance determinations.

(a) MSHA will use a single sample collected and analyzed by the Secretary in accordance with the requirements of this section as an adequate basis for a determination of noncompliance with the DPM limit.

(b) The Secretary will collect samples of DPM by using a respirable dust sampler equipped with a submicrometer impactor and analyze the samples for the amount of elemental carbon using the method described in NIOSH Analytical Method 5040, except that the Secretary also may use any methods of collection and analysis subsequently determined by NIOSH to provide equal or improved accuracy for the measurement of DPM.

(c) The Secretary will use full-shift personal sampling for compliance determinations.

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Editorial Note: Based on ***FedReg. Doc. 05-10681***, this section has been changed.

The new version is in **BOLD**. The old section will remain, pending the next publication of the 30 CFR.

The effective date for this is July 6, 2005.

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Effective July 6, 2005, this section will be removed.

30 CFR § 57.5062 Diesel particulate matter control plan.

(a) In the event of a violation by the operator of an underground metal or nonmetal mine of the applicable concentration limit established by § 57.5060, the operator, in accordance with the requirements of this section, must--

(1) Establish a diesel particulate matter control plan for the mine if one is not already in effect, or modify the existing diesel particulate matter control plan, and

(2) Demonstrate that the new or modified diesel particulate matter control plan controls the concentration of diesel particulate matter to the applicable concentration limit specified in § 57.5060.

(b) A diesel particulate control plan must describe the controls the operator will utilize to maintain the concentration of diesel particulate matter to the applicable limit specified by § 57.5060. The plan also must include a list of diesel-powered units maintained by the mine operator, information about any unit's emission control device, and the parameters of any other methods used to control the concentration of diesel particulate matter. The operator may consolidate the plan with the ventilation plan required by § 57.8520. The operator must retain a copy of the current diesel particulate matter control plan at the mine site during its duration and for one year thereafter.

(c) An operator must demonstrate plan effectiveness by monitoring, using the measurement method specified by § 57.5061(b), sufficient to verify that the plan will control the concentration of diesel particulate matter to the applicable limit under conditions that can be reasonably anticipated in the mine. The operator must retain a copy of each verification sample result at the mine site for five years. The operator monitoring must be in addition to, and not in lieu of, any sampling by the Secretary pursuant to § 57.5061.

(d) The records required by paragraphs (b) and (c) of this section must be available for review upon request by the authorized representative of the Secretary, the authorized representative of the Secretary of Health and Human Services, or the authorized representative of miners. In addition, upon request by the District Manager or the authorized representative of miners, the operator must provide a copy of any records required to be maintained pursuant to paragraph (b) or (c) of this section.

(e)(1) A control plan established as a result of this section must remain in effect for 3 years from the date of the violation which caused it to be established, except as provided in paragraph (e)(3) of this section.

(2) A modified control plan established as a result of this section must remain in effect for 3 years from the date of the violation which caused the plan to be modified, except as provided in paragraph (e)(3) of this section.

(3) An operator must modify a diesel particulate matter control plan during its duration as required to reflect changes in mining equipment or circumstances.

Upon request from the Secretary, an operator must demonstrate the effectiveness of the modified plan by monitoring, using the measurement method specified by § 57.5061, sufficient to verify that the plan will control the concentration of diesel particulate matter to the applicable limit under conditions that can be reasonably anticipated in the mine.

(f) The Secretary will consider an operator's failure to comply with the provisions of the diesel particulate matter control plan in effect at a mine or to conduct required verification sampling to be a violation of this part without regard for the concentration of diesel particulate matter that may be present at any time.

30 CFR § 57.5065 Fueling practices.

(a) Diesel fuel used to power equipment in underground areas must not have a sulfur content greater than 0.05 percent. The operator must retain purchase records that demonstrate compliance with this requirement for one year after the date of purchase.

(b) The operator must only use fuel additives registered by the U.S. Environmental Protection Agency in diesel powered equipment operated in underground areas.

30 CFR § 57.5066 Maintenance standards.

(a) Any diesel powered equipment operated at any time in underground areas must meet the following maintenance standards:

(1) The operator must maintain any approved engine in approved condition;

(2) The operator must maintain the emission related components of any non-approved engine to manufacturer specifications; and

(3) The operator must maintain any emission or particulate control device installed on the equipment in effective operating condition.

(b)(1) A mine operator must authorize each miner operating diesel-powered equipment underground to affix a visible and dated tag to the equipment when the miner notes evidence that the equipment may require maintenance in order to comply with the maintenance standards of paragraph (a) of this section. The term "evidence" means visible smoke or odor that is unusual for that piece of equipment under normal operating procedures, or obvious or visible defects in the exhaust emissions control system or in the engine affecting emissions.

(2) A mine operator must ensure that any equipment tagged pursuant to this section is promptly examined by a person authorized to maintain diesel equipment, and that the affixed tag not be removed until the examination has been completed. The term "promptly" means before the end of the next shift during which a qualified mechanic is scheduled to work.

(3) A mine operator must retain a log of any equipment tagged pursuant to this section. The log must include the date the equipment is tagged, the date the equipment is examined, the name of the person examining the equipment, and

any action taken as a result of the examination. The operator must retain the information in the log for one year after the date the tagged equipment was examined.

(c) Persons authorized by a mine operator to maintain diesel equipment covered by paragraph (a) of this section must be qualified, by virtue of training or experience, to ensure that the maintenance standards of paragraph (a) of this section are observed. An operator must retain appropriate evidence of the competence of any person to perform specific maintenance tasks in compliance with those standards for one year after the date of any maintenance, and upon request must provide the documentation to the authorized representative of the Secretary.

30 CFR § 57.5067 Engines.

(a) Any diesel engine introduced into an underground area of a mine covered by this part after July 5, 2001, other than an engine in an ambulance or fire fighting equipment which is utilized in accordance with mine fire fighting and evacuation plans, must either:

(1) Have affixed a plate evidencing approval of the engine pursuant to subpart E of Part 7 of this title or pursuant to Part 36 of this title; or

(2) Meet or exceed the applicable particulate matter emission requirements of the Environmental Protection Administration listed in Table 57.5067-1, as follows:

Table 57.5067-1

EPA requirement	EPA category	PM limit
40 CFR 86.094-8(a)(1)(i)(A)(2)..... 40 CFR 86.094-9(a)(1)(i)(A)(2)..... 40 CFR 86.094-11(a)(1)(iv)(B)..... 40 CFR 89.112(a).....	light duty vehicle..... light duty truck..... heavy duty highway engine..... nonroad (tier, power range)..... tier 1 kW<8 (hp<11)..... tier 1 8≤kW<19 (11≤hp<25)..... tier 1 19≤kW<37 (25≤hp<50)..... tier 2 37≤kW<75 (50≤hp<100)..... tier 2 75≤kW<130 (100≤hp<175)..... tier 1 130≤kW<225 (175≤hp<300).....	0.1 g/mile. 0.1 g/mile. 0.1 g/bhp-hr. varies by power range: 1.0 g/kW-hr (0.75 g/bhp-hr). 0.80 g/kW-hr