

CHAPTER 190

EXPLOSIVES

Authority

N.J.S.A. 21:1A-128 et seq., specifically 21:1A-131.

Source and Effective Date

R.1993 d.72, effective February 1, 1993.
See: 24 N.J.R. 4235(a), 25 N.J.R. 595(b).

Executive Order No. 66(1978) Expiration Date

Chapter 190, Explosives, expires on February 1, 1998.

Chapter Historical Note

Chapter 190, originally Explosives Permits and Fees, was filed and became effective, along with Chapter 191, Transportation of Explosives, Chapter 192, Storage of Explosives, and Chapter 193, Use of Explosives, prior to September 1, 1969. Chapters 191, 192, and 193 were repealed by R.1982 d.229 and an amended Chapter 190, Explosives, was adopted effective August 2, 1982, but operative October 15, 1982. See: 13 N.J.R. 517(b), 14 N.J.R. 837(c).

Pursuant to Executive Order No. 66(1978), Chapter 190 expired on September 5,

1987 and was subsequently adopted as new rules by R.1988 d.16, essentially readopting with amendments the expired text, except that of Subchapter 6, Transportation of Explosives, which was replaced by Transportation of Explosives Off-the-Highway, and expired Subchapter 8, Explosives at Piers, Railway, Truck and Air Terminals, which was not readopted; effective January 4, 1988. See: 19 N.J.R. 1883(a), 20 N.J.R. 99(b).

Pursuant to Executive Order No. 66(1978), Chapter 190 expired on January 4, 1993 and was subsequently adopted as new rules by R.1993 d.72. See: Source and Effective Date. See, also, section annotations for specific rulemaking activity.

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SUBCHAPTER 1. GENERAL PROVISIONS**12:190-1.1 Title and citation**

This regulation shall be known and may be cited as Chapter 190, Explosives of Title 12, N.J.A.C.

12:190-1.2 Purpose

The purpose of this chapter is to protect the public and property by establishing reasonable standards for the manufacture, sale, transportation, storage and use of explosives.

12:190-1.3 Scope

(a) This chapter shall apply to every person who manufactures, sells, transports, stores, uses or possesses explosives, except as provided in (b) below.

(b) This chapter shall not apply to:

1. The military or naval forces of the United States or its allies, or the duly authorized militia of any state, nor to the police or fire departments of this State, providing the same are acting in their official capacity and in the performance of their public duties;
2. Transportation of explosives in interstate or intrastate commerce;
3. Model rocketry subject to Chapter 194, Model Rocketry of Title 12, N.J.A.C.;
4. Employee safety subject to the Occupational Safety and Health Act, 29 USC 651 et seq.;
5. Fireworks subject to N.J.S.A. 21:2-1 et seq. and N.J.S.A. 21:3-1 et seq.;
6. Small arms ammunition; and
7. Explosives in the forms prescribed by the official U.S. Pharmacopoeia.

Amended by R.1988 d.16, effective January 4, 1988.
See: 19 N.J.R. 1883(a), 20 N.J.R. 99(b).

12:190-1.4 Documents referred to by reference

The availability of standards and publications referred to in this chapter is explained in N.J.A.C. 12:190-12.

12:190-1.5 Validity

Should any section, paragraph, sentence or word of this chapter be declared for any reason to be invalid, such decision shall not affect the remaining portions of this chapter.

12:190-1.6 Exceptions

In cases of practical difficulty or unnecessary hardship the commissioner may grant exceptions from this chapter provided that a request for such exceptions has been made in writing. Exceptions shall only be granted when it is clearly evident that a satisfactory and safe condition is attained, but shall not be granted in any case where conflict would be created with mandatory requirements of the act.

12:190-1.7 Existing installations

(a) Installations that were in accordance with the applicable chapters on explosives of Title 12, N.J.A.C. prior to the effective date of this chapter may be continued in service if found by the Office of Safety Compliance to be in a safe condition.

(b) The maintenance of existing installations shall be in accordance with this chapter and any replacements thereof shall be in conformity with this chapter.

12:190-1.8 Security and safety of explosives

(a) The manufacture of any explosive material shall be prohibited unless such manufacture is authorized by Federal license, when required, and is conducted in accordance with recognized safe practices.

(b) No person shall manufacture, store, sell, transport, use, dispose of, or possess explosives in any manner that creates a recognized hazard that is causing or is likely to cause physical harm to any person or property.

(c) The commissioner may restrict the quantity of explosive materials that may be handled at any location.

(d) All explosives materials and newly developed and unclassified explosives shall meet the provisions of this chapter.

(e) Every person who manufactures, sells, transports, stores, uses or possesses explosives which are sensitive to electric charges shall take the following precautions:

1. Suspend operations at the approach of and during an electrical storm;
2. Comply with Radio-Frequency Radiation Hazards, IME Safety Library Publication No. 20-1978;
3. Have testing performed for extraneous electric currents by a competent person using instrumentation designed for the purpose when any operation is in the vicinity of high voltage electric lines;
4. Utilize only approved testing equipment for use in connection with electric detonators; and
5. Utilize only effective grounding methods to eliminate the buildup of static electric charges.

(f) Every person who manufactures, sells, transports, stores, uses or possesses explosives shall not permit:

1. Smoking, unguarded lights, fire, or flame producing devices, except devices specifically designed for use with explosives, within 100 feet of any explosive; and
2. Any person under his control to stay in the danger zone when there is imminent danger of explosives detonating from any source of fire.

(g) Every person who manufactures, sells, transports, stores, uses or possesses explosives shall have such explosives accounted for at all times; and any such explosives shall not be abandoned, buried or covered over by any materials as a means of disposal.

(h) The manufacturer's markings or labels on explosives shall not be changed or destroyed, except for detonation during use or disposal.

(i) No person, other than security or law enforcement personnel, shall carry firearms in the immediate vicinity of explosives.

(j) Any person holding a permit in accordance with N.J.A.C. 12:190-3 shall prohibit any person under the influence of alcohol, narcotics or other dangerous drugs from performing any activity associated with the explosives under his control.

SUBCHAPTER 2. DEFINITIONS**12:190-2.1 Definitions**

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

"Acceptor" means a charge of explosives or blasting agent receiving an impulse from an exploding donor charge.

"Act" means the Explosive Act, N.J.S.A. 21:1A-128 et seq.

"Air Blast" means the airborne shock wave or acoustic transient generated by an explosion.

"Ammunition primer" means a device used to ignite the powder charges of ammunition.

"Approved" means acceptable to the commissioner.

"Artificial barricade" means an artificial mound or properly revetted wall of earth.

"Barricaded" means that a building containing explosives is effectively screened from a magazine, inhabited building, railway or highway, either by a natural barricade or by an artificial barricade of such height that a straight line from the top of any side wall of a building containing explosives to the eave line of any magazine or inhabited building or to a point 12 feet above the center of a railway or highway, will pass through such intervening natural or artificial barricade.

"Black powder" means a deflagrating or low explosive compound composed of an intimate mixture of sulfur, char-

coal, and an earth nitrate usually potassium nitrate or sodium nitrate.

“Blast area” means the area of a blast including the area immediately adjacent, within the normal influence of flying rock missiles.

“Blaster” means a person who holds a valid permit to perform blasting operations.

“Blasting” means the breaking up of heavy masses of material by explosives.

“Blasting agent” means any material or mixture, consisting of a fuel and oxidizer, intended for blasting, not otherwise classified as an explosive, provided that the finished product, as mixed and packaged for use or shipment, cannot be detonated by means of a No. 8 test blasting cap when unconfined.

“Blasting cap” means a metallic capsule containing an initiating explosive and a base charge, open at the end to accept a section of safety fuse and used for initiating the primer or main charge.

“Blasting machine” means an electrical or electromechanical device which provides electrical energy for the purpose of energizing electric blasting caps.

“Blasting mat” means a mat of woven steel wire, rope, scrap tires or other suitable material or construction to cover blast holes for the purpose of preventing fly rock missiles.

“Bulk mix delivery motor vehicle” means a motor vehicle that transports explosives, blasting agents or ingredients for explosive material in bulk form for mixing and loading directly into blast holes.

“Bullet-resistant” means magazine walls or doors of construction resistant to penetration of a bullet of 150-grain M2 ball ammunition having a nominal muzzle velocity of 2700 feet per second fired from a 0.30 caliber rifle from a distance of 100 feet perpendicular to the wall or door. When a magazine ceiling or roof is required to be “bullet-resistant”, the ceiling or roof shall be constructed of materials comparable to the side walls or of other materials which will withstand penetration of the bullet above described when fired at an angle of 45 degrees from the perpendicular.

“Bullet-sensitive explosive material” means material that can be detonated by 150-grain M2 ball ammunition having a nominal muzzle velocity of 2700 feet per second when the bullet is fired from a .30 caliber rifle at a distance of not more than 100 feet and the test material, at a temperature of 70 to 75 degrees F., is placed against a backing material of ½-inch steel plate.

“Burden” means that dimension of a medium to be blasted measured from the borehole to the face at right angles to the spacing. It means also the total amount of material to be blasted by a given hole, usually measured in cubic yards or in tons.

“Bureau of Explosives” means Bureau of Explosives of the Association of American Railroads.

“Cabinet” means a magazine for smokeless powder having wooden walls at least one inch thick and having shelves with not more than three feet separation between shelves and having at least one lock and hinges and hasps that cannot be removed when the door is closed and locked.

“CFR” means Code of Federal Regulations in effect on the effective date this chapter was last amended.

“Class A explosive” means an explosive possessing detonating or maximum hazard and means an explosive which is described in section 53 of 49 CFR Part 173.

“Class B explosive” means an explosive possessing flammable hazard such as propellant explosives and photographic flash powders and means an explosive described in section 88 of 49 CFR Part 173.

“Class C explosive” means certain types of manufactured articles which contain class A, or class B explosives, or both, as components but in restricted quantities, and certain types of fireworks and means an explosive described in section 100 of 49 CFR Part 173.

“Commercial explosive” means any explosive except a propellant and nitro-carbo-nitrate, including, but not limited to, dynamite black blasting powder, pellet powder, initiating explosive, blasting cap, electric blasting cap, safety fuse, fuse igniter, fuse lighter, squib, cordeau detonant fuse, instantaneous fuse, igniter cord and igniter.

“Commissioner” means the Commissioner of the Department of Labor and Industry or his authorized designee.

“Competent person” means a person possessing ability and experience that fully qualify him to perform the duty associated with explosives to which he is assigned or has assumed.

“Construction” means an assembly of material to form a building or structure for occupancy or use. These constructions include assembly, business, factory, industrial, high hazard, institutional, mercantile, residential and storage buildings; but do not include construction occupied in connection with the manufacture, transportation, storage or use of explosives.

“Construction official” means a qualified person appointed by the municipal appointing authority to enforce and administer legal issues within the jurisdiction of the municipality.

“Delay interval” means the time interval in milliseconds between successive detonations of the delay devices used.

“Demolition” means any work involving the use of explosives in the total or partial dismantling or razing of any construction.

“Detonating cord” means a flexible cord containing a center core of high explosive and used to detonate other explosives.

“Detonating fuze” means a detonating system used in the military to detonate high explosive bursting charges of projectiles, mines, bombs, torpedoes, and grenades. In addition to a powerful detonator, they may contain several ounces of a high explosive, all assembled in a heavy steel envelope.

“Detonator” means any device containing a detonating charge that is used for initiating detonation in an explosive. The term includes, but is not limited to, electric blasting caps of instantaneous and delay types, blasting caps for use with safety fuses, detonating-cord delay connectors, and non-electric instantaneous or delay blasting caps.

“Donor” means an exploding charge producing an impulse that impinges upon an explosive “acceptor” charge.

“Electric blasting cap” means a blasting cap designed for, and capable of, initiation¹ by means of an electric current.

“Explosive” means any chemical compound or mixture that is commonly used or intended for the purpose of producing an explosion, that contains any oxidizing and combustible materials or other ingredients, in such proportions, quantities or packing that an ignition by fire, by friction, by concussion or by detonation of any part of the compound or mixture may cause such a sudden generation of highly heated gases that the resultant gaseous pressure is capable of producing destructive effects on contiguous objects.

(a) The term “explosive” includes, but is not limited to:

1. A commercial explosive, propellant or nitro-carbonate;
2. A high explosive or a low explosive; and
3. An explosive material, blasting agent, water gel or detonator.

(b) The term “explosive”, except as specifically stated in the act, does not include:

1. Small arms ammunition;
2. An explosive in a form prescribed by the United States Pharmacopoeia; or
3. Fireworks regulated under Manufacture, Storage and Transportation of Fireworks, N.J.S.A. 21:2-1 et seq.

“Explosive material” means an explosive.

“Explosive manufacturing building” means any building or other structure, except magazines, in which the manufacture of explosives is carried on.

“Explosive manufacturing establishment” means all lands, and buildings situated thereon, used in connection with the manufacture of explosives.

“Fireworks” means any combustible or explosive composition, or any substance or combination of substances, or articles prepared for the purpose of producing a visible or audible effect by combustion, explosion, deflagration or detonation.

“Flammable liquid” means any liquid with a flash point less than 100 degrees F as measured by tests specified in section 173.115 of 49 CFR part 173, except: a flammable liquid with a vapor pressure greater than 40 psia at 100 degrees F., a liquid mixture containing one percent or less flammable components, and a water-alcohol solution containing 24 percent or less alcohol.

“Flammable solid” means any material, other than an explosive, which is liable to cause fires through friction, absorption of moisture, spontaneous chemical changes, retained heat from manufacturing or processing, or which can be ignited readily and when ignited burns so vigorously and persistently as to create a serious transportation hazard.

“Fly rock” means rock propelled from the blast area by the forces of an explosion.

“Fuel” means a substance that may react with the oxygen in the air or with the oxygen or other oxidizing material yielded by an oxidizer to produce combustion.

“Hertz” means cycles per second.

“High explosive” means any explosive material which can be caused to detonate by means of a blasting cap, when unconfined.

“Highway” means any public street, road, highway, alley or part of a navigable stream which is used as a highway of commerce.

“IME” means the Institute of Makers of Explosives.

“Inhabited building” means a building regularly occupied in whole or in part as a habitation for human beings, or any church, schoolhouse, railroad station, store or other structure where people are accustomed to assemble, except any building or structure occupied in connection with the manufacture, transportation, storage or use of explosives.

“Initiating primer” means an explosive cartridge with a detonator or igniting agent inserted therein.

"Low explosive" means an explosive material which can be caused to deflagrate when confined.

"Magazine" means any building, structure or other enclosure or container, other than explosive manufacturing building used for the storage of explosives.

"Misfire" means an explosive material charge that fails to detonate after an attempt at initiation.

"Motor vehicle" means any self propelled vehicle, truck, tractor, semi-trailer, or truck-full trailer used for the transportation of explosives.

"Natural barricade" means natural features of the ground including but not limited to hills, or timber of sufficient density so that the surrounding exposures which require protection cannot be seen from the magazine containing explosives when the trees are bare of leaves.

"NFPA" means National Fire Protection Association.

"N.J.A.C." means the New Jersey Administrative Code.

"N.J.S.A." means the New Jersey Statutes Annotated.

"Nitro-carbo-nitrate" means an explosive classified as a blasting agent.

"No. 8 test blasting cap" means a cap containing two grams of a mixture of 80 percent mercury fulminate and 20 percent potassium chlorate, or a cap of equivalent strength.

"Office of Safety Compliance" means the Office of Safety Compliance in the Division of Workplace Standards of the New Jersey Department of Labor and Industry, CN 386, Trenton, N.J. 08625, telephone 609-292-2096.

"Oxidizer" means a substance such as nitrate that yields oxygen or other oxidizing substance readily to stimulate the combustion of organic matter or other fuel.

"Oxidizing material" means an oxidizer.

"Peak particle velocity" means the peak particle velocity recorded on any one of the three mutually perpendicular components of blasting vibrations in the vertical and horizontal directions.

"Permit holder" means any person who has obtained a permit to manufacture, transport, store or use explosives.

"Person" means any natural person, partnership, firm, association or corporation.

"Placard" means a sign placed on a motor vehicle transporting explosives or oxidizers indicating the nature of the cargo.

"Propellant" means any solid chemical or solid chemical mixture which functions by rapid combustion of successive layers and includes, but is not limited to, smokeless powder for small arms, smokeless powder for cannon, smokeless powder or solid propellant for rockets, jet thrust units, or other devices.

"Public conveyance" means any transportation facility which is carrying passengers for hire.

"Railway" means and includes any steam, electric or other railroad or railway which carries passengers for hire on the particular line or branch in the vicinity where explosives storage magazines or explosives manufacturing buildings are situated, but shall not include auxiliary tracks, spurs and sidings installed and primarily used for transporting freight.

"Seismograph" means an instrument which records ground vibration. Particle velocity displacement, or acceleration are generally measured and recorded in three mutually perpendicular directions.

"Semi-conductive hose" means a hose with an electrical resistance high enough to limit flow of stray electric currents to safe levels, yet not so high as to prevent drainage of static electric charges to ground such as hose of not more than two megohms resistance over its entire length and not less than 5,000 ohms per foot.

"Sensitivity" means a physical characteristic of an explosive classifying its ability to detonate upon receiving an external impulse such as impact, shock, flame, or other influences which can cause explosive decomposition.

"Single delay" means a delay in time of nine milliseconds or more.

"Small arms ammunition" means any cartridge for shot-gun, rifle, pistol, or revolver, and cartridge for propellant-actuated power devices and industrial guns. Military-type ammunition containing explosive bursting charges, or any incendiary, tracer, spotting or pyrotechnic projectile is excluded from this definition.

"Smokeless propellant" means a solid propellant, commonly called smokeless powder in the trade, used in small arms ammunition, cannon, rockets, or propellant-actuated powder devices.

"Squib" means a firing device that burns with a flash and is used for igniting black powder or pellet powder.

"Stemming" means an inert material placed in a borehole after the explosive and for the purpose of confining explosive materials or to separate charges of explosive material in the same borehole.

"Stray current" means a flow of electricity outside of the conductor which normally carries it.

"Type 1 magazine" See N.J.A.C. 12:190-5.2(b)1.

"Type 2 magazine" See N.J.A.C. 12:190-5.2(b)2.

"Type 3 magazine" See N.J.A.C. 12:190-5.2(b)3.

"Type 4 magazine" See N.J.A.C. 12:190-5.2(b)4.

"Type 5 magazine" See N.J.A.C. 12:190-5.2(b)5.

"USC" means United States Code.

"USDOT" means United States Department of Transportation.

"Vibration" means the energy from a blast that manifests itself in earthborne vibrations which are transmitted through the earth away from the immediate blast area.

"Water gel" means any of a wide variety of materials used for blasting that contain substantial proportions of water and high proportions of ammonium nitrate, some of which is in solution in the water. Two broad classes of water gels are (a) those which are sensitized by a material classed as an explosive, such as TNT or smokeless powder, and (b) those which contain no ingredient classified as an explosive; these are sensitized with metals such as aluminum or with other fuels. Water gels may be classified as class A explosives, class B explosives or blasting agents.

Amended by R.1988 d.16, effective January 4, 1988.
See: 19 N.J.R. 1883(a), 20 N.J.R. 99(b).

¹ So in original.

SUBCHAPTER 3. ADMINISTRATION

12:190-3.1 Scope of subchapter

This subchapter shall apply to the procedures for the issuance of permits, the payment of fees, the recordkeeping required for permit holders, and reporting procedures.

12:190-3.2 Permit restrictions

(a) No person shall manufacture, sell, store or use explosives unless a permit has been issued as provided in the applicable provisions of this subchapter.

(b) No explosives shall be sold, given or delivered to any person not in possession of a permit.

(c) No permit shall be assigned or in any way transferred.

(d) No permit holder shall manufacture, sell, transport, store or use explosives except in compliance with the limitations expressed on the permit.

(e) No permit shall be issued for the sale, storage or use of explosives which are not acceptable to the Commissioner.

(f) No permit shall be issued where the Commissioner concludes, after full examination of the qualifications of an applicant, that to grant a permit would be dangerous to the health, safety and welfare of the public.

Amended by R.1988 d.16, effective January 4, 1988.
See: 19 N.J.R. 1883(a), 20 N.J.R. 99(b).

12:190-3.3 Exemptions from permits

(a) No permit shall be required for the storage or use of smokeless powder which is used by private persons for the hand loading of small arms ammunition and which is not for resale. For this purpose not more than 36 pounds of smokeless powder and not more than five pounds of black powder shall be stored or transported without a permit.

(b) Persons holding, or employed by a person holding, a permit to manufacture explosives, and who engaged in the testing of explosives incidental to the manufacture or development of explosives, shall not be required to obtain a permit to use explosives.

Amended by R.1988 d.16, effective January 4, 1988.
See: 19 N.J.R. 1883(a), 20 N.J.R. 99(b).

12:190-3.4 Application for permit

(a) An application for a permit shall be made to the Commissioner on forms provided by him and shall contain all information as the Commissioner may require.

(b) An applicant for a permit shall, at his own expense, furnish whatever pertinent information the Commissioner may require in addition to that specified in this subchapter.

(c) Any false representation made for the purpose of procuring a permit shall be cause for revocation.

(d) Initial applications for a permit to use explosives for blasting purposes shall be accompanied by two recent photographs and two completed fingerprint cards.

(e) Applications for annual renewal of permits shall be mailed or delivered by the Commissioner to the permit holder's address as shown on the previous application.

(f) If an application for renewals is filed with the Commissioner before the expiration of the old permit, the renewal shall become effective when the old permit expires.

(g) Renewal permits shall not be issued more than 30 days prior to the expiration date of current permits.

12:190-3.5 Investigation of applicants for permits

(a) Upon receipt of an application for a permit to manufacture, store, sell, transport or use explosives, and before the permit is issued, the Commissioner shall make or cause

to be made an investigation for the purpose of ascertaining if all applicable requirements of this chapter and the Act have been met.

(b) For an initial permit to manufacture, store, sell, or use explosives the Commissioner shall make a determination of "good moral character and loyalty to the United States" referenced in N.J.A.C. 12:190-3.6. This determination is based on:

1. Acceptance of the applicant by the Bureau of Alcohol, Tobacco, and Firearms of the United States Department of the Treasury for any activity concerning explosives; or
2. Acceptance of the applicant by the State or local police department for any activity concerning explosives; or
3. Any method acceptable to the Commissioner.

(c) The Commissioner shall not issue a permit to manufacture, sell, store, transport or use explosives when investigation reveals that all the provisions of this chapter and the Act have not been met.

Amended by R.1988 d.16, effective January 4, 1988.
See: 19 N.J.R. 1883(a), 20 N.J.R. 99(b).

12:190-3.6 Qualifications of applicants for permits

(a) An applicant for a permit to manufacture, sell, store or use explosives shall:

1. Be at least 21 years of age;
2. Have a reasonable understanding of the English language;
3. Present satisfactory evidence of experience in the manufacture, sale, transportation, storage or use of explosives;
4. Demonstrate by written, oral or field examination, as the commission may direct, adequate knowledge of the safe manufacture, sale, transportation, storage or use of explosives, the provisions of this chapter, and the Act;
5. Be of good moral character and must never have been disloyal to the United States; and it shall be within the sole discretion of the Commissioner to determine whether an applicant who has been convicted of a crime involving moral turpitude has the good moral character necessary for a permit;
6. Be free of any physical handicap, illness, addiction to alcohol, narcotics or other dangerous drugs, or uncorrected defect in vision or hearing, that might diminish the competence of the applicant to comply with this chapter;
7. Not have been adjudicated as a mental defective or committed to any mental institution; and
8. Have physical facilities complying with the applicable provisions of this chapter.

(b) When the applicant for a permit to manufacture, sell, store or use explosives is a firm, association or corporation, the applicant shall demonstrate that such activities with regard to explosives will be under the direct supervision of a person who meets the qualifications contained in this section.

Amended by R.1988 d.16, effective January 4, 1988.
See: 19 N.J.R. 1883(a), 20 N.J.R. 99(b).

12:190-3.7 Invalidation of permits

Whenever a permanent storage magazine for which a permit has been issued is moved to a new location, or its physical surroundings are so changed that the magazine comes within the prohibited distances to a highway, railroad or inhabited building, the permit for said magazine shall become invalid and a new permit shall be required.

12:190-3.8 Revocation of permits

(a) A permit for the sale, storage or use of explosives may be revoked by the Commissioner for any of the following reasons:

1. Non-compliance with any order issued by the Commissioner within the time specified in such order;
2. Proof that the permit holder has been convicted of a crime punishable by imprisonment for a term exceeding one year;
3. Proof that a permit holder is disloyal to the United States;
4. Violation by the permit holder of the terms specified on the permit, or essential changes in the conditions under which the permit was issued;
5. Violation by the permit holder of any of the provisions of the act; or
6. False statements on the application for the permit.

(b) In any case where the Commissioner revokes a permit, he shall notify the permit holder of the revocation. The notice shall state the specific charges upon which the revocation is based and, that upon written request, a hearing before the Commissioner may be held within ten days after the date of the revocation.

(c) If the hearing is held before the Commissioner, he shall state his findings and conclusions in writing and transmit a copy to the permit holder.

(d) Upon notice of the revocation of any permit, the permit holder shall immediately surrender to the Commissioner the permit revoked and all copies thereof.

Amended by R.1988 d.16, effective January 4, 1988.
See: 19 N.J.R. 1883(a), 20 N.J.R. 99(b).

12:190-3.9 Availability of permits

Permits shall be readily available at all times to inspection by the Commissioner, local construction official, state police or local police and fire departments, and shall be posted in accordance with the applicable provisions of N.J.A.C. 12:190-3.12.

12:190-3.10 Permit class

(a) The "permit to manufacture" shall authorize the manufacture, possession and storage of explosives in process, development of explosives and finished products. This permit covers the purchase of explosives and ingredients for the manufacture of explosives.

(b) The "permit to sell" shall authorize the purchase, possession and sale of explosives. This permit shall be required of all persons who sell explosives whether or not they physically handle, store or possess explosives. This permit is also required for nonresidents who sell explosives within the State. This permit is required for each location from which explosives are sold.

(c) The "permit to store" shall authorize the purchase of explosives and the storage of explosives in an approved magazine within the quantities expressed on the permit. In the case of storage of explosives on agricultural lands for use by farmers, one permit may cover separate magazines for explosives and caps.

(d) The "permit to use" shall authorize the use of explosives for such purposes and under such conditions as are specified on the permit.

Amended by R.1988 d.16, effective January 4, 1988.
See: 19 N.J.R. 1883(a), 20 N.J.R. 99(b).

12:190-3.11 "Permit to use"

(a) The applicant for an initial "permit to use" explosives shall demonstrate to the satisfaction of the Commissioner that he has had adequate education, training and experience in the use of explosives in any grade authorized in the applicable permit.

(b) Before a "permit to use" explosives may be issued, the applicant shall pass a qualifying examination given by the Commissioner. The examination may be written, oral or by such other means as necessary to determine that the applicant is competent to conduct blasting operations and to perform the duties of a blaster.

(c) Any holder of a "permit to use" explosives who is convicted of a violation of the act may be required to pass a requalifying examination as a condition to the retention of his permit.

(d) Any person whose "permit to use" explosives for blasting purposes has been revoked may be required to pass a qualifying examination before the permit is reinstated.

(e) Any person whose permit has lapsed for a period of one year or more may be required to pass a qualifying examination before renewal of the permit is granted.

(f) No person shall perform any blasting operation other than that which is specified on the permit.

(g) A Grade J "permit to use" explosives shall authorize the purchase of explosives.

(h) The "permit to use" explosives shall be subdivided into grades as listed in Table 3.11(h).

Table 3.11(h)

Classification of "Permit to Use"

Grade	Description
A	All blasting
S-1	All surface rock blasting, or demolition of structures not exceeding 25 feet in height.
S-2	All surface rock blasting, or demolition of structures under 20 feet in height, either of which is limited to blast holes four inches or less in diameter, 3,000 lbs. of explosives or less or 300 electric blasting caps or less per blast cycle.
S-3	All surface rock blasting, or demolition of structures less than 10 feet in height, either of which is limited to blast holes four inches or less in diameter, 1,500 lbs. of explosives or less, or 200 electric blasting caps or less per blast cycle.
S-4	All surface rock blasting, or structural foundations blasting, either of which is limited to blast holes three and one half inches or less in diameter, 500 lbs. of explosives or less, or 100 electric blasting caps or less, per blast cycle.
S-5	All surface rock blasting, or demolition of structural foundations, either of which is limited to blast holes three inches or less in diameter, 50 lbs. of explosives or less, or 50 electric blasting caps or less, per blast cycle.
S-6	Restricted to loading explosives into blast holes, preparing primers, and wiring blast circuits, when under the direct supervision of a holder of a "permit to use" of a higher grade.
Q1 through Q6	Restricted to surface rock blasting in open pit mines and quarries. Grades as above with the same limitations, except the letter Q shall be imposed instead of S.
U	Underground rock blasting.
D	All demolition blasting of buildings, smoke stacks, bridges, and other structures.
G	Blasting on farms not exceeding 50 pounds per blast.
H	a. Use in a research process as a component part in the manufacture of a product. b. Seismic prospecting or well shooting. c. Test firing of devices containing explosives. d. Other special use described on the face of the permit. A Grade H permit entitles the holder only to that use described on its face.
J	Authorizes purchase of explosives when such person does not have a permit for permanent storage of explosives.

(i) An applicant for a "permit to use" explosives in any grade shall have experience in the next lower grade as provided by Table 3.11(i).

Table 3.11(i)

Grade Experience

Grade or Equivalent	Experience in Next Lower Grade or Equivalent Grade months	Grade or Equivalent	Experience in Next Lower Grade or Equivalent Grade months
A	12	Q-3	3
S-1	9	Q-4	3
S-2	6	Q-5	3
S-3	3	Q-6	none
S-4	3	U	3
S-5	3	D	*

Grade or Equivalent	Experience in Next Lower Grade or Equivalent Grade months	Grade or Equivalent	Experience in Next Lower Grade or Equivalent Grade months
S-6	none	G	none
Q-1	9	H	3
Q-2	6	J	none

* At least 12 months experience in the demolition of constructions and hold a grade S-1 permit or its equivalent.

12:190-3.12 Responsibilities of permit holders

(a) All holders of a "permit to manufacture, sell, store or use" explosives shall comply with the reporting provisions of this subchapter.

(b) All holders of a "permit to manufacture, sell, store or use" explosives shall post or be in possession of a permit as described in this subsection.

1. The "permit to manufacture" shall be posted in the main office of the explosive manufacturing establishment.

2. The "permit to sell" shall be posted at the location where explosives are sold, and any person who delivers explosives shall have a photocopy of the original "permit to sell" posted in the delivery vehicle.

3. The original copy of the "permit to store" shall be posted in the storage magazine, and a duplicate copy kept on file at the place of business.

4. The "permit to use" shall be in the possession of the permit holder.

(c) Permit holders shall take every reasonable precaution to protect their permits from loss, theft, defacement, destruction or unauthorized duplication.

(d) The loss or theft of any permit shall be immediately reported to the Commissioner.

Amended by R.1988 d.16, effective January 4, 1988.
See: 19 N.J.R. 1883(a), 20 N.J.R. 99(b).

12:190-3.13 Explosives not permitted

(a) A "permit to sell, transport, store or use" any of the following explosives shall not be issued:

1. Liquid nitroglycerin;
2. Dynamite (except gelatin dynamite) containing over 60 percent of liquid explosive ingredient;
3. Dynamite having an unsatisfactory absorbent or one that permits leakage of a liquid explosive ingredient under any conditions liable to exist during storage;
4. Nitrocellulose in a dry uncompressed condition in a quantity greater than ten pounds net weight in one package;
5. Fulminate of mercury in a dry condition and fulminate of all other metals in any condition except as a component of manufactured articles not hereinafter forbidden;

6. Explosive compositions that ignite spontaneously or undergo marked decomposition rendering the products or their use more hazardous, when subjected for 48 consecutive hours or less to a temperature of 167 degrees F;

7. Explosives containing an ammonium salt and a chlorate;

8. New explosives until approved by the USDOT, except that a permit may be granted for transportation and possession for laboratory examination of such explosives when under development by responsible research organizations;

9. Explosives not packed or marked in accordance with the USDOT;

10. Explosives prohibited for transportation by the USDOT; and

11. Explosives prohibited by the Commissioner.

Amended by R.1988 d.16, effective January 4, 1988.
See: 19 N.J.R. 1883(a), 20 N.J.R. 99(b).

12:190-3.14 Annual fees for permits

(a) After an application for a permit has been approved, the correct fee shall be forwarded to the Office of Safety Compliance.

(b) The check or money order shall be made payable to the Commissioner of Labor and Industry.

(c) A permit shall not be forwarded to the applicant until the fee has been received by the Commissioner.

(d) Fees shall not be refunded when a permit is revoked or abandoned.

(e) The fee for replacing a lost permit shall be \$10.00.

(f) An annual fee shall be paid for a "permit to manufacture" explosives in accordance with Table 3.14(f).

Table 3.14(f)

Fee for "Permit to Manufacture" Explosives

Explosives		Annual Fee dollars
pounds over	pounds not over	
0	500	200
500	5,000	400
5,000	10,000	600
10,000	and over	1,000

(g) An annual fee shall be paid for a "permit to sell" explosives in accordance with Table 3.14(g).

Table 3.14(g)

Fee for "Permit to Sell" Explosives

Type of Sale	Annual Fee dollars
High explosives retail	150
Low explosives retail	35
High explosives wholesale	300
Low explosives wholesale	150

(h) An annual fee shall be paid for a "permit to store" commercial explosives other than detonators in accordance with Table 3.14(h).

Table 3.14(h)

Fee for "Permit to Store" Commercial

Explosives Other Than Detonators

Explosives		Annual Fee dollars
pounds over	pounds not over	
0	100	25
100	500	50
500	2,000	75
2,000	10,000	100
10,000	20,000	125
20,000	30,000	150
30,000	40,000	200
40,000	50,000	250
50,000	100,000	350
100,000	200,000	450
200,000	250,000	500
250,000 and over		750

(i) An annual fee shall be paid for a "permit to store" detonators in accordance with Table 3.14(i).

Table 3.14(i)

Fee for "Permit to Store" Detonators

Detonators		Annual Fee dollars
number over	number not over	
0	500	25
500	1,000	50
1,000	5,000	75
5,000	10,000	100
10,000	100,000	125
100,000	300,000	150
300,000	400,000	200
400,000	500,000	250
500,000	600,000	300
600,000	700,000	350
700,000	1,000,000	500
1,000,000 and over		750

(j) An annual fee shall be paid for a "permit to use" explosives in accordance with Table 3.14(j).

Table 3.14(j)

Fee for "Permit to Use" Explosives

Grade of Permit	Annual Fee * dollars
A	200
S-1	125
S-2	90
S-3	80
S-4	70
S-5	50
S-6	20
Q-1	80
Q-2	65
Q-3	55
Q-4	50
Q-5	25
Q-6	15
U	50
D	200
G	25
H	50
I	200

* A person holding more than one grade of permit is only required to pay the fee for the highest grade.

(k) An annual fee shall be paid for a private individual to store and use smokeless powder, in the hand loading of small arms ammunition, which is for personal use and not for resale, in accordance with Table 3.14(k).

Table 3.14(k)

Fee for "Permit to Store and Use" Smokeless Powder

Smokeless Powder		Annual Fee dollars
pounds over	pounds not over	
0	36	none
36	50	2
50	60	4
60	75	6
75	100	10
Each additional 100 lbs per year or fraction thereof		10

(l) An annual fee shall be paid for a private individual to store, transport and use black powder, in the hand loading of small arms ammunition, which is for personal use and not for resale, in accordance with Table 3.14(l).

Table 3.14(l)

Fee for "Permit to Store and Use" Black Powder

Black Powder		Annual Fee dollars
pounds over	pounds not over	
0	5	none
5	10	2
10	25	5
25	100	10
Each additional 100 lbs per year or fraction thereof		10

Amended by R.1988 d.16, effective January 4, 1988.

See: 19 N.J.R. 1883(a), 20 N.J.R. 99(b).
 Amended by R.1991 d.613, effective December 16, 1991.
 See: 23 N.J.R. 2949(a), 23 N.J.R. 3815(b).
 Revised (f)-(j).

12:190-3.15 Recordkeeping for all permit holders

(a) Every person holding a "permit to manufacture, sell, store or use" explosives shall keep records in accordance with this section.

(b) All records required by this section shall be maintained and be open to inspection by the commissioner at all reasonable times.

(c) Where an owner is maintaining records complying with this section, his employees holding "permit to use" explosives shall not be required to maintain individual records.

(d) Where the person holding a "permit to manufacture, sell or store" explosives maintains records for the Bureau of Alcohol, Tobacco and Firearms of the U.S. Department of the Treasury, which substantially comply with this section, the permit holder shall be deemed in compliance with this section, providing the records are available for inspection by the commissioner in accordance with (b) above.

(e) At least one copy of the records required by this section shall be maintained at the address provided on the "permit to manufacture, sell, store or use".

(f) Information from the records required by this section shall be forwarded to the commissioner upon his written request.

(g) Invoices, sales slips, receipts, or similar papers representing individual transactions may be used as temporary records. Information from these records shall be recorded in a permanent record not later than one week from the date following the date of transaction.

(h) The person holding a "permit to manufacture, sell, store or use" explosives shall record the information required by this section and retain a permanent record.

1. Permanent records shall show the name of the supplier, quantities, brand and type, manufacturer's identifying marks and the date of all invoices or transactions.

2. Permanent records shall show the exact disposition of all explosives whether used in manufacturing, sold, or used in blasting or other disposal.

3. Permanent records shall be retained at least until the end of the calendar year following the year in which the record was made.

Administrative Correction to (h)3.
 See: 22 N.J.R. 2022(a).

12:190-3.16 Recordkeeping for holders of "permit to manufacture"

(a) In addition to the recordkeeping of N.J.A.C. 12:190-3.15, holders of "permit to manufacture" shall comply with this section.

(b) The permanent record of a person having a "permit to manufacture" explosives shall include the following:

1. The amount and type of explosives acquired;
2. The amount of explosives on hand;
3. The amount and destination of explosives shipped;
4. The dates of transactions; and
5. The names and addresses of suppliers and purchasers of explosives.

(c) Where the information contained in (b) above can be obtained from regular business records, a separate record need not be maintained.

12:190-3.17 Recordkeeping for holders of "permit to sell"

(a) In addition to the recordkeeping of N.J.A.C. 12:190-3.15, holders of "permit to sell" shall comply with this section.

(b) The permanent record of a person having a "permit to sell" shall include the following:

1. The amounts and kinds acquired;
2. The names and addresses of the persons from whom acquired and the dates on which acquired;
3. The amounts and kinds sold or otherwise disposed of;
4. The names, addresses and permit numbers and dates of permits of persons to whom sold or otherwise disposed of, and the dates of the sales or other dispositions;
5. The amount and kinds on hand at each location at the end of each day on which there are transactions or operations; and
6. A certified list of names of representatives or agents authorized to accept explosives on behalf of any purchaser.

12:190-3.18 Recordkeeping for holders of "permit to store" or "Grade J permit to use"

(a) In addition to the recordkeeping of N.J.A.C. 12:190-3.15, holders of "permit to store" or "Grade J permit to use" shall comply with this section.

(b) The permanent record of a person having a "permit to store" or a "Grade J permit to use" shall include the following:

1. The amounts and kinds acquired;
2. The names and addresses of the persons from whom acquired and the dates on which acquired;
3. The amounts and kinds in a continuous inventory record for each magazine; and
4. The amounts and kinds used or otherwise disposed of in the conduct of the business operations.

12:190-3.19 Recordkeeping for holders of "permit to use"

(a) In addition to the recordkeeping of N.J.A.C. 12:190-3.15, holders of "permit to use" explosives shall comply with this section.

(b) The person having a "permit to use" explosives shall maintain a permanent record of each blast. At least one copy of this record shall be maintained at the plant or construction office. In the absence of a blast site office, the record shall be maintained at the principal place of business of the employer.

(c) The person having a "permit to use" explosives shall maintain a record of each blast which shall include the following:

1. Name and address of person responsible for the project;
2. Name and permit number of blaster in charge;
3. Name, address and specific locations at the address of the blasting project;
4. Identification number for each blast in sequence by project on an annual basis;
5. Date and time of the blast;
6. General type of material blasted;
7. Nature of blasting, such as bank, trench or pre-split;
8. Weather conditions, including wind speed direction, temperature, and sky conditions;
9. Blast hole description, including hole sizes, inclinations, depths, sub-drilling, number of holes, burden spacing, and number of rows of holes;
10. Depth of stemming;
11. Depth and placement locations of decking used;
12. Kind of explosives used;
13. Total amount of explosives used;
14. Maximum amount of explosives fired on any time delay period;
15. The number of holes fired included in the maximum pounds per delay;

16. Number and brand name or type of electric blasting delay blasting cap series used and the number of individual delay periods;

17. Actual firing time where electric delay blasting caps do not fall within the manufacturer's sequence of delay time;

18. Size and total length of detonating cord, when used, delay periods, and type of precaution to deaden sound effects;

19. All pertinent information on delay periods, when other nonelectric initiating systems are used;

20. A plan indicating blast hole lay-out and a cross-section of typical blast hole showing burden, spacing, depth of hole, sub-drilling, stemming depth, decking location, and locations of detonators and explosives;

21. The horizontal distance and direction to the nearest non-owned construction from the blast site;

22. Indicate whether the blast was designed under N.J.A.C. 12:190-7.26(f) or monitored by approved instrumentation;

23. Where instrumentation is used, the names of the instruments, operator and interpreter and statement of compliance with (f) below.

(d) When more than one similar blast is to be conducted in a single day, one form may be utilized for compliance with (c) above, provided the number of blasts is included and all applicable questions are answered for each blast.

(e) The person having a "permit to use" explosives shall maintain a record of all misfires which shall include the following:

1. The address and involved portion of the mine or construction site;
2. The date of misfire;
3. The number of holes involved in the misfire;
4. The cause of the misfire;
5. The method used to reblast the misfire;
6. The name of the blaster in responsible charge of handling the misfire; and
7. The signature, address and title of the person making the report.

(f) When required by N.J.A.C. 12:190-7, the person holding a "permit to use" explosives shall maintain a record of ground vibration readings of air blast effect reading or both, which shall include the following:

1. Identification of the instrument used;
2. The name of the observer;
3. The name of the interpreter;

4. The distance in feet and direction of the construction not owned or leased from the blast site;

5. The distance in feet and direction of the instrument locations from the blast site if different than (f)4 above;

6. The type of surface at the instrument location. If the instrument is placed inside a construction, it should be so indicated;

7. The maximum peak particle velocity of any one of the three mutually perpendicular components of the ground motion in the vertical and horizontal directions at the specific location in inches per second and the frequency range of the instrument; and

8. The sound measurement in decibels measured on the linear frequency response or the overpressure in pounds per square inch.

12:190-3.20 Reporting

(a) Any accident involving explosives which results in an injury to a person or serious property damage shall be immediately reported by telephone to the Office of Safety Compliance by the permit holder for the explosives involved.

(b) Every person holding a "permit to manufacture, sell, store or use" explosives shall report immediately any loss by theft or otherwise of explosives in his possession to the appropriate officials of the Division of Workplace Standards.

(c) Every person holding a "permit to store or use" commercial explosives shall file monthly reports with the Office of Safety Compliance ten days after the end of each calendar month using the Monthly Explosives Use Report, Form No. ES-400, except that when an employer is maintaining and submitting such reports, his employees holding "permits to use" explosives shall not be required to submit individual reports.

(d) Every person holding a "permit to sell" at retail, commercial explosives shall file monthly reports with the Office of Safety Compliance ten days after the end of each calendar month using the Monthly Explosives Sales Report, Form No. ES-401.

(e) Monthly Explosive Use Report, Form No. ES-400, and Monthly Explosives Sales Report, Form No. ES-401 may be secured from the Office of Safety Compliance.

(f) When ground vibration recordings or air blast effect recordings, or both, are taken upon authorization of the mine operator or blasting contractor, a copy of the reports shall be forwarded to the Commissioner upon his written request.

(g) A person intending to demolish by explosives any construction which exceeds 25 feet in height shall report such demolition to the Office of Safety Compliance in the manner prescribed by N.J.A.C. 12:190-7.24(b) and (c).

Amended by R.1988 d.16, effective January 4, 1988.
See: 19 N.J.R. 1883(a), 20 N.J.R. 99(b).

SUBCHAPTER 4. MANUFACTURE OF EXPLOSIVES

12:190-4.1 Scope of subchapter

This subchapter shall apply to explosives at explosives manufacturing establishments.

12:190-4.2 Buildings and magazines

(a) All buildings and magazines shall be approved.

(b) All buildings used for the manufacture of commercial explosives shall be located one from the other and from other buildings of the explosive manufacturing establishment in which persons are regularly employed in accordance with Table 4.2.

Table 4.2
Quantity and Distance for Commercial Explosives

Commercial Explosives pounds over	pounds not over	Distance	
		feet Unbarricaded	feet Barricaded
10 *	25	40	20
25	50	60	30
50	100	80	40
100	200	100	50
200	300	120	60
300	400	130	65
400	500	140	70
500	750	160	80
750	1,000	180	90
1,000	1,500	210	105
1,500	2,000	250	115
2,000	3,000	260	130
3,000	4,000	280	140
4,000	5,000	300	150
5,000	6,000	320	160
6,000	7,000	340	170
7,000	8,000	360	180
8,000	9,000	380	190
9,000	10,000	400	200
10,000	12,000	420	210
12,500	15,000	450	225
15,000	17,500	470	235
17,500	20,000	490	245
20,000	25,000	530	265
25,000	30,000	560	280
30,000	35,000	590	295
35,000	40,000	620	310
40,000	45,000	640	320
45,000	50,000	660	330
50,000	55,000	680	340

Commercial Explosives		Distance	
pounds over	pounds not over	feet Unbarricaded	feet Barricaded
55,000	60,000	700	350
60,000	65,000	720	360
65,000	70,000	740	370
70,000	75,000	770	385
75,000	80,000	780	390
80,000	85,000	790	395
85,000	90,000	800	400
90,000	95,000	820	410
95,000	100,000	830	415
100,000	125,000	900	450
125,000	150,000	950	475
150,000	175,000	1,000	500
175,000	200,000	1,050	525
200,000	225,000	1,100	550
225,000	250,000	1,150	575
250,000	275,000	1,200	600
275,000	300,000	1,270	635

Note to Table

* Ten pounds or less may be stored in a separate building or in storage space properly separated by substantial dividing walls. Such a wall shall be designed to prevent, control, or delay propagation of explosions between quantities of explosives on opposite sides of the wall.

(c) All magazines for commercial explosives shall be located from explosive manufacturing buildings and other buildings of the explosive manufacturing establishment in which persons are regularly employed in accordance with Table 4.2.

(d) All explosive manufacturing buildings in which commercial explosives are stored shall be located from inhabited buildings, railways and public highways in accordance with N.J.A.C. 12:190-5.

12:190-4.3 Plan for explosive manufacturing establishment

(a) An initial "permit to manufacture" explosives shall not be issued unless a plan complying with (b) below has been submitted in triplicate to the commissioner for approval.

(b) The explosive manufacturing establishment plan shall show the location of all explosive manufacturing buildings, the distances they are located from other buildings on the premises, and from magazines. The plan shall show the distance of the explosive manufacturing buildings from inhabited buildings, railroads, and highways not on the premises of the explosive manufacturing establishment.

(c) The person holding a "permit to manufacture" explosives shall keep a copy of the explosive manufacturing plan in the main office of the establishment, which shall be open to inspection by the commissioner.

12:190-4.4 Fencing

Explosive manufacturing establishments shall be enclosed with an industrial type fence at least six feet high or an equivalent enclosure, when required by the commissioner.

12:190-4.5 Storage

(a) Two or more types of explosives may be stored together provided they are compatible and such storage does not increase substantially the probability of an incident or a hazard.

(b) Explosives shall not be stored in the vicinity of operations involving hazardous substances where an accident could detonate the explosives.

(c) Explosives being held for the manufacturing process line be stored in approved dry boxes until needed in the process line.

(d) Explosives shall not be permitted to accumulate in any place in the explosive manufacturing establishment in such quantity that an accidental detonation of such explosives would create a danger to the public.

(e) All magazines shall be located in accordance with N.J.A.C. 12:190-5.10 through 5.17, as applicable.

12:190-4.6 Assembly of ammunition primers and detonating fuses

(a) Manufactured explosive components used in the assembly of ammunition primers and detonating fuses shall be stored in magazines or approved dry boxes until needed in the assembly line.

(b) The explosive components in dry boxes shall not exceed 25 pounds.

(c) Explosive components packaged in non-mass detonating shipping packages shall be stored in a locked room or locked storage cabinet where no other items are stored.

(d) When shipping cartons containing explosive components are opened, the explosive components shall be stored in an indoor magazine until moved to the day-box at the assembly line. The total weight of explosives stored in any indoor magazine shall not exceed 50 pounds.

12:190-4.7 Blasting agents

Mixing of blasting agents shall be in accordance with N.J.A.C. 12:190-9.

SUBCHAPTER 5. STORAGE OF EXPLOSIVES

12:190-5.1 Scope of subchapter

This subchapter shall apply to the storage of explosives in magazines.

12:190-5.2 Types of magazines

(a) For the purposes of this subchapter, magazines shall be grouped into four types; Type 1, Type 2, Type 3, and Type 4 magazines.

(b) The four types of magazines as listed in (a) above shall be defined as follows:

1. "Type 1 magazine" means a permanent outdoor magazine.
2. "Type 2 magazine" means an indoor magazine or an outdoor magazine that is portable or mobile, such as a skid magazine or a trailer or semi trailer.
3. "Type 3 magazine" means a portable outdoor magazine, such as a "day-box" or a magazine on skids.
4. "Type 4 magazine" means an indoor or outdoor magazine.
5. "Type 5 magazine" means a magazine for the permanent storage of explosives in underground operations.

(c) The magazines defined in (b) above may be used for the storage of explosives as follows:

1. Type 1 magazines shall be used for the storage of high explosives or other classes of explosives.
2. Type 2 magazines shall be used for the temporary storage of high explosives or other classes of explosives.
3. Type 3 magazines shall be used, while attended, for the temporary storage of high explosives or other classes of explosives.
4. Type 4 magazines shall be used for the storage of low explosives, smokeless powder, or blasting agents.
5. Type 5 magazines shall be used for the storage of explosives not to exceed 5,000 pounds.
6. Blasting caps or detonators shall not be stored with other explosives in the same magazine.

(d) The commissioner may authorize alternate construction for magazines for the storage of explosives when it is shown that the alternate magazine construction is substantially equivalent to the standards of safety and security contained in this subchapter.

Amended by R.1988 d.16, effective January 4, 1988.
See: 19 N.J.R. 1883(a), 20 N.J.R. 99(b).

12:190-5.3 Construction of type 1 magazines

(a) This section shall apply to the construction of type 1 magazines.

(b) A type 1 magazine shall be a permanent structure, a building, an igloo, a tunnel, or a dugout. It shall be bullet-resistant, fire-resistant, weather-resistant, and theft-resistant.

(c) All type 1 magazines shall be constructed of masonry, wood, metal, or a combination of these materials as specified in this section, and shall have no openings except for entrances and for ventilation.

(d) Walls of type 1 magazines shall be constructed in accordance with Table 5.3.

Table 5.3

Type 1 Magazine Wall Construction *

Construction Type	Exterior Wall Inches	Intermediate Layer Inches	Interior Wall Lining Inches
1	½ steel	***	***
2	½ steel	**	¾ plywood
3	½ steel	**	2 hardwood
4	¾ steel	**	3 softwood or 2½ plywood
5	¾ steel	**	3 hardwood
6	¾ steel	**	5 softwood or 4½ plywood
7	¾ steel	2 hardwood	1½ plywood
8	¾ steel	**	4 hardwood
9	¾ steel	**	7 softwood or 6¾ plywood
10	¾ steel	3 hardwood	¾ plywood
11	¾ steel	**	5 hardwood
12	¾ steel	**	9 softwood
13	¾ steel	4 hardwood	¾ plywood
14	¾ steel	1st layer ¾ plywood, 2nd layer 3¾ well tamped dry sand or sand and cement mixture	¾ plywood
15	Any structurally sound fire resistant material	4 hardwood or 4 solid brick or 4 solid concrete	¾ plywood
16	8 concrete block	voids filled with well tamped sand or concrete mixture	***
17	8 solid brick	**	***
18	Any structurally sound fire resistant material e.g. ¾ plywood with 26 gauge metal covering	Nonsparking material providing a space of 6 well-tamped dry sand or sand and cement mixture	***
19	Any fire-resistant material	1st layer ¾ plywood, 2nd layer 3¾ well tamped dry sand or sand and cement mixture, 3rd layer ¾ plywood, 4th layer 2 hardwood or 14 gauge steel	¾ plywood
20	8 poured concrete	**	***

* All steel and wood dimensions are actual thickness and concrete block and brick dimensions are nominal thickness.

** No requirement.

*** No requirement other than contained in (e) below.

(e) Interior walls shall be constructed of or covered with a nonsparking material.

(f) Floors shall be constructed of or covered with any suitable nonsparking material and shall be strong enough to bear the weight of the maximum quantity of explosives to be stored.

(g) Foundations shall 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 spaces under the buildings shall be enclosed with fire-resistant material.

(h) Outer roofs shall be constructed of fabricated metal, tile, asbestos, concrete, or other fire-resistant material. 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 stored within, the magazine shall be protected by one of the following methods:

1. 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 located at the tops of inner walls covering the entire ceiling area, except that portion necessary for ventilation, or

2. 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.

(i) Doors shall be constructed of ¼ inch plate steel and lined with three inches of hardwood. For each additional ⅛ inch of plate steel the hardwood lining may be decreased one inch.

(j) Hinges and hasps shall be attached to the doors by welding, riveting, or bolting with nuts on inside of door. The hinges and hasps shall be installed in such a manner that they cannot be removed when the doors are closed and locked.

(k) Each door shall be equipped with one or more of the following:

1. Two mortise locks;
2. Two padlocks fastened in separate hasps and staples;
3. A combination of a mortise lock and a padlock;
4. A mortise lock that requires two keys to open;
5. A three-point lock; or
6. A bolt, lock or bar which cannot be actuated from the outside.

(l) Padlocks shall have at least five tumblers and a case-hardened shackle of at least 7/16 inch diameter.

(m) Outdoor padlocks shall be protected with ¼ inch steel hoods constructed so as to prevent sawing or level action on the locks or hasps.

(n) No sparking material shall be exposed to contact with stored explosive materials. All ferrous nails in the floor and side walls which might be exposed to contact with explosive materials shall be blind nailed or countersunk or the floor and side walls covered with a non-sparking lattice work or other material.

(o) Igloo, tunnel, and dugout magazines shall be constructed of reinforced concrete, masonry, metal or a combination of these materials. They shall have an earthmound

covering of not less than 24 inches on top, sides, and rear. Magazines of this type shall comply with (e), (f), (i), (j), (k), (l), (m) and (n) above respectively.

12:190-5.4 Construction of type 2 outdoor magazines

(a) This section shall apply to the construction of type 2 outdoor magazines.

(b) A type 2 outdoor magazine shall be a box, trailer, semi-trailer, or other mobile facility.

(c) Type 2 outdoor magazines shall be bullet-resistant, fire-resistant, weather-resistant, and theft-resistant. They shall be supported in such a manner so as to prevent direct contact with the ground and, if less than one cubic yard in size, shall be securely fastened to a fixed object to prevent theft of the entire magazine.

(d) The exterior and covers or doors shall be constructed of ¼ inch steel and shall be lined with three inches of hardwood. Magazines with top openings shall have lids with water-resistant seals which overlap the sides by at least one inch when in a closed position.

(e) Hinges and hasps, locks, padlocks, padlock protection, and sparking material shall comply with N.J.A.C. 12:190-5.3(j), (k), (l), (m), and (n) respectively.

12:190-5.5 Construction of type 2 indoor magazines

(a) This section shall apply to the construction of type 2 indoor magazines.

(b) Type 2 indoor magazines shall 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.

(c) Type 2 indoor magazines shall be constructed of wood or metal according to one of the following:

1. Wood magazines shall have sides, bottoms and covers or doors constructed of two inches of hardwood and shall be well braced at corners. They shall be covered with sheet metal of not less than number 20 gauge. Nails exposed to the interior of magazines shall be countersunk.

2. Metal magazines shall have sides, bottoms, and covers or doors constructed of number 12 gauge metal and shall be lined inside with a nonsparking material. Edges of metal covers shall overlap sides at least one inch.

3. Magazines for blasting caps (cap boxes) in quantities of 100 or less shall have sides, bottoms and covers or doors constructed of number 12 gauge metal and lined with a nonsparking material.

(d) Hinges and hasps, locks, padlocks, padlock protection, and sparking material shall comply with N.J.A.C. 12:190-5.3(j), (k), (l), (m), and (n) respectively; except that with regard to padlocks on type 2 indoor magazines in rooms which are locked only one padlock for each magazine door or cover, which need not be protected by a steel hood, shall be required.

12:190-5.6 Construction of type 3 magazines

(a) This section shall apply to the construction of type 3 magazines.

(b) A type 3 magazine shall be a day-box or other portable magazine. It shall be bullet-resistant, fire-resistant, and theft resistant.

(c) A type 3 magazine shall be constructed in the same manner prescribed for type 2 outdoor magazines in N.J.A.C. 12:190-5.4, except that it may be lined with two inches of hardwood, and it need not be securely fastened to a fixed object.

(d) Hinges and hasps, locks, padlocks, padlock protection, and sparking material shall comply with N.J.A.C. 12:190-5.3(j), (k), (l), (m) and (n) respectively.

12:190-5.7 Construction of type 4 outdoor magazines

(a) This section shall apply to the construction of type 4 outdoor magazines.

(b) A type 4 outdoor magazine shall be a building, igloo, tunnel, dugout, box, trailer, or a semi-trailer or other mobile magazine.

(c) Type 4 outdoor magazines shall be fire-resistant, weather-resistant, and theft-resistant.

(d) Type 4 outdoor magazines shall be constructed of masonry metal-covered wood, fabricated metal, or a combination of these materials.

(e) The walls and floors shall be constructed of, or covered with, a nonsparking material or lattice work.

(f) Foundations shall 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 spaces under the buildings shall be enclosed with fire-resistant material.

(g) The doors or covers shall be metal or solid wood covered with metal.

(h) Hinges and hasps, locks, padlocks, padlock protection, and sparking material shall comply with N.J.A.C. 12:190-5.3(j), (k), (l), (m), and (n) respectively.

12:190-5.8 Construction of type 4 indoor magazines

(a) This section shall apply to the construction of type 4 indoor magazines.

(b) Type 4 indoor magazines shall 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.

(c) Type 4 indoor magazines shall be constructed of wood or metal according to one of the following:

1. Wood magazines shall have sides, bottoms and covers or doors constructed of one inch of hardwood and shall be well braced at corners. They shall be covered with sheet metal of not less than number 26 gauge. Ferrous nails exposed to the interior of magazines shall be countersunk.

2. Metal magazines shall have sides, bottoms, and covers or doors constructed of not less than 16 gauge metal and shall be lined inside with a nonsparking material.

(d) Hinges and hasps, locks, padlocks, padlock protection, ventilation and sparking material of all type 4 indoor magazines shall comply with N.J.A.C. 12:190-5.3(j), (k), (l), (m) and (n) respectively; except that with regard to padlocks on type 4 indoor magazines in rooms which are locked only one padlock for each magazine door or cover, which need not be protected by a steel hood, shall be required.

12:190-5.9 Construction of services for magazines

(a) Magazines shall not be provided with artificial heat.

(b) No lighting shall be placed or used in a storage facility of type 1, 2, 3, or 4 magazines except approved battery activated safety lights or battery activated safety lanterns.

(c) Magazines shall be ventilated to prevent dampness or heating of stored explosive materials adversely affected by lack of ventilation. Vents in the foundation, roof, or gables shall be offset or shielded and screened to prevent the entrance of sparks.

(d) The ground around all outdoor magazines shall slope away for drainage.

(e) Unattended vehicular magazines shall have wheels removed or shall be effectively immobilized by kingpin locking devices or other approved methods.

12:190-5.10 Location of type 1 magazines and type 2 outdoor magazines

(a) Type 1 magazines and type 2 outdoor magazines shall be located outside of buildings.

(b) Type 1 magazines and type 2 outdoor magazines in which high explosives are stored shall be located no closer to inhabited buildings, passenger railways, public highways,

or other magazines in which high explosives are stored, than the distances specified in Table 5.10.

Table 5.10
High Explosives

QUANTITY OF EXPLOSIVES		DISTANCES IN FEET							
		Inhabited Buildings		Public Highways with Traffic Volume of 3,000 or less Vehicles/Day		Passenger Railways— Public Highways with Traffic Volume of more than 3,000 Vehicles/Day		Separation of Magazines	
				Barri- caded *	Unbarri- caded	Barri- caded	Unbarri- caded		
Pounds Over	Pounds Not Over	Barri- caded *	Unbarri- caded	Barri- caded *	Unbarri- caded	Barri- caded	Unbarri- caded	Barri- caded	Unbarri- caded
2	5	70	140	30	60	51	102	6	12
5	10	90	180	35	70	64	128	8	16
10	20	110	220	45	90	81	162	10	20
20	30	125	250	50	100	93	186	11	22
30	40	140	280	55	110	103	206	12	24
40	50	150	300	60	120	110	220	14	28
55	75	170	340	70	140	127	254	15	30
75	100	190	380	75	150	139	278	16	32
100	125	200	400	80	160	150	300	18	36
125	150	215	430	85	170	159	318	19	38
150	200	235	470	95	190	175	350	21	42
200	250	255	510	105	210	189	378	23	46
250	300	270	540	110	220	201	402	24	48
300	400	295	590	120	240	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	265	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	480	960	180	360	366	732	44	88
1,800	2,000	505	1,010	185	370	378	756	45	90
2,000	2,500	545	1,000	190	380	408	816	48	96
2,500	3,000	580	1,100	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	69	138
7,000	8,000	800	1,600	250	500	600	1,200	72	144
8,000	9,000	835	1,870	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	1,480	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	480
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

QUANTITY OF EXPLOSIVES		DISTANCES IN FEET							
		Inhabited Buildings		Public Highways with Traffic Volume of 3,000 or less Vehicles/Day		Passenger Railways— Public Highways with Traffic Volume of more than 3,000 Vehicles/Day		Separation of Magazines	
Pounds Over	Pounds Not Over	Barri- caded *	Unbarri- caded	Barri- caded *	Unbarri- caded	Barri- caded	Unbarri- caded	Barri- caded	Unbarri- caded
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

Note to Table

* "Barricaded" means a natural barricade or an artificial barricade of a minimum thickness of three feet.

12:190-5.11 Location of type 2 indoor magazines

(a) Type 2 indoor magazines shall be located on a floor nearest the ground level in a warehouse or in a wholesale or retail establishment which has an entrance or ramp to exterior grade level. Such magazines shall be located not more than 10 feet from such an entrance.

(b) Two magazines may be located in the same building when one magazine is used for detonators not exceeding 5,000 detonators, and when a distance of 10 feet is maintained between magazines.

12:190-5.12 Location of type 3 magazines

(a) Type 3 magazines shall be located as far away as practicable from neighboring inhabited buildings, railways, highways, and any other magazine.

(b) Type 3 magazines may be located outside of buildings or inside buildings.

12:190-5.13 Location of type 4 outdoor magazines

(a) Type 4 outdoor magazines shall be located outside of buildings.

(b) Type 4 outdoor magazines in which low explosives are stored shall be located not closer to inhabited buildings, passenger railways, public highways, or other magazines in which explosives are stored, than the distances of Table 5.13.

Table 5.13
Low Explosives

Low Explosives		Distance in Feet from		
pounds over	pounds not over	Inhabited Building	Public Railroad and Highway	Above- ground Magazine
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

Low Explosives**Distance in Feet from**

		Public Railroad and Highway			Above- ground Magazine
pounds over	pounds not over	Inhabited Building	Public Railroad and Highway	Above- ground Magazine	
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	

(c) The distances shown in Table 5.13 shall not be reduced by the presence of barricades.

12:190-5.14 Location of type 4 indoor magazines

Type 4 indoor magazines shall be located as provided for type 2 indoor magazines in N.J.A.C. 12:190-5.11.

12:190-5.15 Location of two or more magazines on the same property

(a) When two or more type 1 or type 2 magazines are located on the same property, each magazine shall be separated from each by the distance specified by Table 5.10 of this subchapter and shall comply with the distances specified in Table 5.10 of this subchapter from inhabited buildings, railways, and highways.

(b) If any two or more type 1 or type 2 magazines are separated from each other by less than the distances specified in the column reading "Separation of Magazines" of Table 5.10, then the two or more magazines, as a group, shall be considered as one magazine. The total quantity of explosives stored in that group shall then be treated as if stored in a single magazine and shall comply with the distances from other magazines, inhabited buildings, railways or highways of Table 5.10.

(c) All types of blasting caps in strengths through No. 8 cap shall be rated at one and one half pounds of explosives per 1,000 caps. For strengths higher than No. 8 caps, consult the manufacturer.

(d) For quantity and distance purposes, detonating cord of 50 to 60 grains shall be calculated as equivalent to nine pounds of high explosives per 1,000 feet. Heavier or lighter core loads shall be rated proportionately.

12:190-5.16 Location of ammonium nitrate and blasting agents from high explosives or blasting agents

(a) Ammonium nitrate and ammonium nitrate-based blasting agents shall be separated from nearby stores of high explosives or blasting agents referred to as the "donor" by distances as provided in Table 5.16.

Table 5.16
Location of Ammonium Nitrate and Blasting Agents
From High Explosives or Blasting Agents *

Donor Weight		Minimum Separation Distance of Acceptor** When Barricaded feet		Minimum Thickness of Artificial Barricades Inches
Pounds Over	Pounds Not Over	Ammonium Nitrate	Blasting Agent	
0	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

* High explosives and blasting agents are donors. Ammonium nitrate, by itself, is not considered to be a donor.

** Ammonium nitrate and blasting agents are acceptors.

(b) If storage of ammonium nitrate is located within the sympathetic detonation distance of explosives or blasting agents, one-half the mass of the ammonium nitrate shall be included in the mass of the donor when calculating separation distances.

(c) When ammonium nitrate or a blasting agent or both is not barricaded, the distances shown in Table 5.16 shall 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 storage is in bullet-resistant magazines recommended for explosives or where the storage is protected by a bullet-resistant wall, the distances and barricade thicknesses need not exceed those prescribed in Table 5.10.

(d) Table 5.16 shall apply to the blasting agents which pass the insensitivity test in the definition of blasting agent of N.J.A.C. 12:190-2.1.

(e) Earthen dikes, sand dikes, or enclosures filled with the required minimum thickness of earth or sand shall be acceptable artificial barricades. Hills or timber of sufficient density shall be acceptable natural barricades.

(f) For determining the distances to be kept from inhabited buildings, passenger railways, and public highways, Table 5.10 shall apply. Ammonium nitrate, when stored with blasting agents or explosives, may be counted at one half its actual weight.

12:190-5.17 Storage in general

(a) All explosive materials shall be kept in locked magazines as prescribed by this subchapter unless they are:

1. In the process of manufacture;
2. Being physically handled in the operating process of a permit holder or user;
3. Being used; or
4. Being transported to a place of storage or used by a permit holder.

(b) No explosives shall be stored in a residence, except when approved by the Commissioner.

(c) No person shall store any explosive materials in a manner not in conformance with this subchapter. The storage standards prescribed by this subchapter confer no rights or privileges to store explosive materials in a manner contrary to 27 CFR Part 181.

(d) No more than one indoor magazine shall be kept in any one building, except that two may be kept in the same building when one is used for the storage of blasting caps, squibs, or similar items and the other magazine is used for the storage of other high explosives or low explosives. Two indoor magazines within the same building shall be separated by a distance of not less than 10 feet.

(e) Combustible material shall not be permitted within 50 feet of outdoor magazines and 25 feet of indoor magazines.

12:190-5.18 Storage within magazines

(a) All magazines shall be in the charge of a competent person at least 21 years of age.

(b) Explosives shall not be stored in any amount exceeding the quantity stated on the storage permit.

(c) Explosives may be stored unattended in types 1, 2, and 4 magazines.

(d) High explosives in excess of 50 pounds or more than 5,000 blasting caps shall not be stored in a type 2 indoor magazine.

(e) Explosives shall not be stored unattended in type 3 magazines.

(f) Low explosives in excess of 50 pounds shall not be stored in a type 4 indoor magazine. This quantity limit shall not apply to smokeless powder which is covered in N.J.A.C. 12:190-10.2.

(g) Any person storing explosive materials shall open and inspect his magazines at least every three days. This inspection need not be an inventory, but shall be sufficient to determine whether there has been unauthorized removal of their contents.

(h) A permittee who intends to make modifications to or changes in a magazine, shall report such intention to the Office of Safety Compliance, prior to modifying the magazine.

(i) Acquired additional magazines shall not be utilized without obtaining a valid permit for such magazine.

(j) Plans shall be submitted for approval, when required by the Commissioner, before magazines are constructed and used.

(k) Explosives materials within type 1, 2, or 4 magazines shall not be placed directly against interior walls and shall 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 shall be used.

(l) Containers of explosive materials shall be stored by being laid flat with top sides up. Corresponding classes as defined in 40 CFR Part 173, grades, and brands of explosives shall be stored together within a magazine in such a manner that grade, brand, and USDOT class marks are easily visible upon inspection. Stocks of explosive materials shall be stored so as to be easily counted and checked.

(m) Except with respect to fiberboard or other nonmetal containers, containers of explosive materials shall not be unpacked or repacked inside a magazine or within 50 feet of a magazine, and shall not be unpacked or repacked near other explosive materials. Containers of explosives materials shall be securely closed while being stored.

(n) Tools used for opening or closing containers of explosive materials shall 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 shall be used for opening or closing wood containers of explosive materials. Metal tools other than nonsparking transfer conveyors shall not be stored in any magazine containing high explosives.

12:190-5.19 Storage in tunnels

(a) Explosives shall not be stored in tunnels where persons are located, unless such storage is approved.

(b) Immediately after the completion of explosive loading operations, all unused explosives in tunnels shall be removed to magazines complying with this subchapter.

12:190-5.20 Storage for underground mines

(a) This section shall apply to storage of explosives for underground mining operations.

(b) "Container" means in this section a receptacle to move explosives in underground mining operations from magazines to the work face in the mine.

(c) A magazine for explosives shall not be permitted underground, until the underground workings are developed to a point where the magazine:

1. Is at least 300 feet from any shaft;
2. Is at least 15 feet from any haulage way or travel way;
3. Has a travel way to the nearest means of egress with at least two sharp turns;
4. Could impede excavation of all persons in the event of accidental detonation of the explosives in the magazine; and
5. Is at least 50 feet from any magazine containing blasting caps.

(d) A type 5 magazine shall be used for the storage of explosives underground.

(e) The amount of explosives stored underground in a mine in a magazine shall not exceed 5,000 pounds.

(f) Any explosives in excess of the amount required for one day's underground mining operations when stored underground in a mine shall be stored in a Type 5 approved magazine constructed in accordance with (i) below.

(g) Daily supplies of explosives within a mine at any working place shall be kept in approved containers constructed in accordance with (j) below.

(h) Prior to closing any part of a mine, all explosives contained therein shall be removed.

(i) A type 5 magazine shall be constructed:

1. In solid rock with the front opening constructed in accordance with Table 5.3 of N.J.A.C. 12:190-5.3;
2. With doors of 2 inches of hardwood covered with 26 gauge sheet metal or the equivalent;
3. With hinges and hasps complying with N.J.A.C. 12:190-5.3(j), (k), (l), (m), and (n);
4. With one padlock complying with N.J.A.C. 12:190-5.3 (k) and (l);
5. So that water will drain away;
6. With a floor that is wood lined or covered with wooden slats;
7. With doors having at least 16 gauge metal outer covering or equivalent fire resistive protection and lined with at least two inches of hardwood;
8. With no artificial heat;
9. Internal lighting by approved electric safety battery lamps or approved electric lights, wiring and equipment of a type designed for the hazardous location;
10. With adequate ventilation; and
11. With a conspicuous marking reading: "EXPLOSIVES".

(j) Containers shall be substantially constructed of plywood or equivalent at least one inch thick, painted red, and marked "Explosives" in letters of at least three inches in height on a contrasting background.

12:190-5.21 Housekeeping in magazines

- (a) Magazines shall be kept clean, dry, and free of grit, paper, empty packages and containers, and rubbish. Floors shall be regularly swept.
- (b) Brooms and other utensils used in the cleaning and maintenance of magazines shall have no spark-producing metal parts, and may be kept in magazines.
- (c) Floors of magazines stained by leakage from explosive materials shall be cleaned according to instructions of the explosives manufacturer.
- (d) When any explosive material has deteriorated to the extent that it is in a dangerous condition, or if a liquid or other material is leaking from any explosive material, it shall be destroyed in accordance with the instructions of its manufacturer.

12:190-5.22 Smoking and open flames

- (a) Smoking, open flames, matches, and other sources of ignition shall not be permitted;
1. In any magazine;

2. Within 100 feet of any outdoor magazine; or

3. Within 25 feet travel distance of any indoor magazine in a mercantile or warehouse occupancy.

12:190-5.23 Repair of magazines

- (a) Magazines shall be maintained in good repair.
- (b) Before repairing and interior of magazines, all explosive materials shall be removed and the interior shall be cleaned.
- (c) Before repairing the exterior of magazines, all explosive materials shall be removed if there exists any possibility that repairs may produce sparks or flame.
- (d) Explosive materials removed from magazines under repair shall be:
1. Placed in other magazines appropriate for the storage of those explosive materials under this subchapter; or
 2. Placed a safe distance from the magazines under repair where they shall be properly guarded and protected until the repairs have been completed.

12:190-5.24 Signs

- (a) On the premises where a type 1 magazine or a type 2 magazine is located, the holder of a "permit to store" explosives shall post a conspicuous warning sign which shall:
1. Read "EXPLOSIVES—KEEP OFF";
 2. Have lettering at least three inches in height on a contrasting background;
 3. Be so located that a bullet passing through the face of the sign will not strike the magazine.
- (b) Type 2 indoor magazines and type 4 indoor magazines shall be labeled "EXPLOSIVES—KEEP FIRE AWAY".
- (c) All type 3 magazines shall bear the word "EXPLOSIVES" in letters at least three inches in height and legible on a contrasting background.
- (d) The provisions in (a) above shall not apply when it is deemed by the Commissioner that a warning sign would have counterproductive results.

12:190-5.25 Notification to municipality

- (a) The holder of a "permit to store" explosives shall keep the fire official informed of:
1. The location of all magazines;
 2. The maximum amount of explosives being stored;
 3. The type and class of explosives being stored; and
 4. Any consequential changes in the location of magazines, amount, type or class of explosives being stored.

Amended by R.1988 d.16, effective January 4, 1988.
See: 19 N.J.R. 1883(a), 20 N.J.R. 99(b).

SUBCHAPTER 6. TRANSPORTATION OF EXPLOSIVES OFF-THE-HIGHWAY

12:190-6.1 Scope of subchapter

This subchapter shall apply to the transportation of explosives off-the-highway, underground, and manually.

12:190-6.2 Transportation of explosives off-the-highway in motor vehicles

(a) This section shall apply to the transportation off-the-highway of explosives at the project site.

(b) When the blasting project is being performed in a location where the public, or workers not associated with the blasting, could approach, the explosives on the vehicle shall be kept locked in:

1. An approved transportation day-box meeting the specifications of a Type 3 magazine; or
2. A closed van type cargo space.

(c) No detonator may be transported on the same motor vehicle with other explosives, unless the provisions of 49 CFR 177.835 are complied with.

(d) No person shall smoke or carry matches or any other flame producing device while in, on, or near a motor vehicle transporting explosives.

(e) No matches, firearms, electric storage batteries, flammable substances, acids, oxidizing materials or corrosive compounds shall be carried in the body of any motor vehicle transporting explosives, except where permitted by 49 CFR Parts 171-178 and 49 CFR Parts 390-397.

(f) When carried in a vehicle transporting explosives, tools for the repair of the motor vehicle and tools required to conduct blasting operations shall be so segregated or secured in place in or on the vehicle and separated by bulkheads or other suitable means as to prevent damage to the explosives.

(g) Every motor vehicle transporting any quantity of explosives shall, at all times, be attended by a driver or other person designated by the owner.

(h) The attendant shall be:

1. Made aware of the class of explosives in the motor vehicle and of its inherent dangers;
2. Instructed in the measures and procedures to be followed in order to protect the public from inherent dangers;

3. Familiarized with the motor vehicle he is assigned to attend; and

4. Trained, authorized, and licensed to move the motor vehicle, when required.

(i) For the purpose of (g) above, a motor vehicle shall be deemed "attended" only when:

1. The attendant is physically on or in the motor vehicle, or has the motor vehicle within his field of vision and can reach the motor vehicle quickly without any interference; or

2. A motor vehicle at a blasting site is within view of the blasting crew.

12:190-6.3 Motor vehicles on off-the-highway projects

(a) This section shall apply to motor vehicles transporting explosives at off-the-highway projects.

(b) Motor vehicles used for transporting explosives shall be strong enough to carry the load and shall be in good mechanical condition.

(c) When explosives are transported in an open-bodied vehicle, they shall be in an approved transportation day-box and such magazine shall be securely fastened to the truck bed.

(d) All motor vehicles used for the transportation of explosives shall have tight floors and any exposed spark-producing metal on the inside of the body, portable magazine, or closed container, shall be covered with wood or other nonsparking material to prevent contact with the explosives.

(e) Motor vehicles, when used for transporting any quantity of explosives, shall display the placards required by N.J.A.C. 12:190-6.4.

(f) Each motor vehicle used for transporting explosives shall be equipped with fire extinguishers as follows:

1. Motor vehicles of less than 14,000 pounds gross vehicle weight with at least two extinguishers having a total rating of at least 4-A:20-B:C; and

2. Motor vehicles of 14,000 pounds gross vehicle weight or more and tractor semi-trailer units with at least two or more extinguishers with total rating of at least 4-A:70-B:C.

(g) Only extinguishers listed by a nationally recognized testing agency shall be used on vehicles carrying explosives. Extinguishers shall be equipped with a device permitting visual determination of charged condition.

(h) Extinguishers shall be located where they will be accessible for immediate use.

(i) Extinguishers shall be examined and recharged periodically in accordance with the manufacturer's recommendation.

(j) Where motor vehicles are operated in temperatures at or below 32 degrees fahrenheit, dry powder extinguishers shall be pressurized with nitrogen gas.

(k) A motor vehicle used for transporting explosives shall be inspected each day before use to determine that it is in proper condition for safe transportation. The inspection shall insure that:

1. The fire extinguishers are fully charged and ready for use;
2. All electrical wiring is protected and fastened to prevent short-circuiting;
3. Chassis, motor, pan and underside of body are reasonably clean and free of excessive oil and grease;
4. Fuel tanks, feed lines, and cross-over lines are secure and have no leaks;
5. Brakes, lights, horns, windshield wipers, defrosters, and steering apparatus are functioning properly; and
6. Tires are properly inflated and are not defective.

12:190-6.4 Signs and markings

(a) Any vehicles on the job site containing explosives shall be placarded on the front, back, and sides, in one of the following ways:

1. Placards with the word "EXPLOSIVES" in letters six inches high and in colors contrasting with the background; or
2. Placards in accordance with 49 CFR 172.522, 523, or 524.

12:190-6.5 Transportation of explosives in underground operations

(a) This section shall apply to the transportation of explosives from the surface to underground operations.

(b) Explosives in small amounts shall be transported in a substantially constructed transport box with lid and sides of plywood at least one inch thick or equivalent. The transport box shall be painted red, with a conspicuous marking reading: "EXPLOSIVES".

(c) Explosives exceeding 100 pounds shall be transported in a powder car of sound construction with an interior and lid of nonsparking material.

(d) The hoist operator shall be notified before transporting explosives in a shaft.

(e) Explosives shall be moved from the surface to the underground destination without any delay enroute.

(f) Detonators and other explosives shall not be transported together in the same transport box, in any shaft conveyance, or in the same cargo space of a powder car. Explosives shall not be transported in any conveyance containing other material.

(g) A person shall not ride in any shaft conveyance transporting explosives.

(h) Explosives transported underground by railroad shall be:

1. In a powder car or, if in small amounts, in a clean empty railroad car;
2. Pulled by a locomotive, if a locomotive is used; and
3. Separated by at least one empty railroad car between the locomotive and the explosive car.

(i) When a trolley locomotive is used to pull a car carrying explosives, at least two empty cars shall be placed between the explosives car and the locomotive, and an electrically insulated coupling or drawbar shall be used between the locomotive and the explosives car.

(j) When a railroad car carrying explosives is pulled by a locomotive, no person other than the train crew and powder man shall be on the train.

(k) The powder car or conveyance carrying explosives shall bear a reflectorized sign on each side with the word "EXPLOSIVES" in letters not less than four inches in height, upon a background of sharply contrasting color.

(l) The amount of explosives taken to any work area shall not exceed the estimated amount needed for the next blast.

(m) Transport boxes shall not be used to store explosives, unless the following shift is to continue loading explosives for the same blast.

12:190-6.6 Manual transportation of explosives

(a) This section shall apply to the manual transportation of explosives by a person.

(b) Explosives shall not be carried in personal clothing.

(c) When it is necessary to carry explosives which are not in the original outside container, they shall be carried in a suitable bag or container.

(d) Blasting caps shall not be transported in the same bag or container with other explosives.

SUBCHAPTER 7. USE OF EXPLOSIVES**12:190-7.1 Scope of subchapter**

(a) This subchapter shall apply to the use of explosives.

12:190-7.2 Compliance

(a) Every mine operator employing the services of a blaster shall use every reasonable precaution to provide for the safety of his employees, all persons at the blast site, and the public in the vicinity of the blast site. Such operator shall comply with this subchapter.

(b) Every contractor and other persons employing the services of a blaster shall use every reasonable precaution to provide for the safety of all persons at the blast site and the public in the vicinity of the blast site. Such contractor and other person shall comply with this subchapter.

(c) Any of the following shall be jointly responsible for compliance with this chapter when involved in any way with blasting operations:

1. Any mine operator;
2. Any contractor;
3. Any sales individual, company firm or corporation providing the services of a blaster;
4. Any other employer of a blaster; and
5. Any blaster.

(d) Where a sales company supplies the services of a blaster to a customer, the sales company, the blaster and the customer shall be jointly responsible for compliance with this subchapter.

(e) Where blasting operations are conducted, all employees shall instruct all their employees associated with such operations in the provisions of this subchapter as they relate to employees.

(f) Where blasting operations are conducted, all employees shall comply with the provisions of this subchapter as they relate to the employees.

(g) No person utilizing the services of a blaster shall prevent compliance by the blaster, or encourage noncompliance by the blaster, with this chapter.

(h) All blasters, prior to and during the use of any explosives, shall comply with this subchapter and shall take all reasonable precautions not specifically set forth in this subchapter to prevent endangerment of the public and property.

(i) Any person who uses explosives in research, metal cutting or forming, seismic testing, actuating devices or other use shall comply with the applicable provisions of this subchapter and provide additional safeguards when the nature of the use indicates that it is necessary in order to assure safety for persons and property.

12:190-7.3 Notification

(a) Any person intending to initiate blasting operations shall notify the construction official prior to conducting any blasting operations. Notification shall include:

1. The specific location of the blasting; and
2. The intended time of the blasting.

(b) Any person intending to conduct blasting operations that are part of a continuing project which continues for more than one day shall require only a single notice of intention to blast. Such single notice shall constitute compliance with (a) above.

(c) Any person intending to conduct blasting operations shall notify the Office of Safety Compliance by telephone, telegram or letter at least 24 hours prior to such operations when:

1. 400 pounds or more of explosives are to be used in a single day at a blasting site; or
2. The blasting operations are to be conducted over a period of five or more days; or
3. Blasting operations are to be conducted within 50 feet of any high voltage transmission line or gas transmission pipeline.

12:190-7.4 Documentation at the blasting site

Any person conducting blasting operations shall have at the blasting site a current permit to use explosives and evidence of insurance required by N.J.A.C. 12:190-7.5.

12:190-7.5 Insurance

(a) Any self employed person in possession of a valid permit to use explosives for blasting purposes shall have an insurance coverage for blasting damage not less than \$50,000 for property damage including explosion, collapse, and underground utility damage and \$100,000 to \$300,000 personal injury. This requirement shall not apply to any person who possesses a Grade G or H permit.

(b) Any person in possession of a valid permit to use explosives for blasting purposes who is working for any person, shall not use explosives for such person, unless the employer has a valid insurance policy for blasting damage not less than \$50,000 for property damage including explosion, collapse, and underground utility damage and \$100,000 to \$300,000 personal injury.

(c) Proof of the possession of a valid insurance policy covering blasting damage shall be readily available for inspection by the commissioner and the construction official.

(d) Nothing in (a) and (b) above shall be construed as preventing a greater insurance coverage for damage from blasting when requested by any person for whom blasting is being done.

12:190-7.6 Time of blasting operations

(a) Surface blasting, except during unusual conditions and when approved by the Commissioner, shall be conducted only during daylight hours, but shall not be conducted before 8:00 A.M. or after 6:00 P.M. on the day of blasting.

(b) Surface blasting shall not be conducted on Sundays except as approved by the Commissioner. Surface blasting on State legal holidays shall not exceed 100 pounds of explosives in any single blast, except as approved by the Commissioner.

(c) Loading of explosives into surface blast holes shall not be performed in other than daylight hours on the day of blasting, except as approved by the Commissioner.

(d) Where loading of surface blast holes has occurred and blasting cannot be safely accomplished within the limits prescribed by (a) and (c) above, the blast holes shall be attended until the explosives have been disposed of, and the person conducting the blasting operations shall notify the Office of Safety Compliance.

12:190-7.7 Blasting in the vicinity of utility lines

(a) This section shall apply to:

1. Blasting operations in the vicinity of underground or exposed utility lines making contact with the earth's surface, which are, but not limited to, any of the following: gas, water, hydrocarbon, sewer, electric or telephone lines.

2. Supporting foundations of utility lines when such utility lines are located above the earth's surface and the supporting foundations are in the vicinity of blasting operations.

(b) This section shall not apply to utility lines located above the earth's surface.

(c) The person conducting blasting operations shall make every reasonable effort to verify the exact location of utility lines located in the vicinity of such operations.

(d) When any person conducting blasting operations has no verification of the location of utility lines in the vicinity of such operations, but it is reasonable to assume that there are utility lines, the person conducting the blasting operations shall make a concentrated effort to locate the lines

with regard to their horizontal distance from the nearest blast hole and their depth below the earth's surface.

(e) The Commissioner may approve alternate procedures to those contained in this section when such alternate procedures are requested in writing and approval would create no additional hazard to the public or property.

(f) Whenever blasting is being conducted within 50 feet of electric, water, sewerage, fire alarm, telephone, telegraph or steam utilities; the person conducting the blasting operations shall notify the appropriate representatives of such utilities at least 24 hours in advance of such blasting. Verbal notice shall be confirmed with written notice.

(g) Whenever blasting is being conducted within 200 feet of a railroad, the person conducting the blasting operations shall notify the appropriate representative of the railroad 24 hours in advance of such blasting. Verbal notice shall be confirmed with written notice.

(h) Whenever blasting is being conducted within 200 feet of any pipe distributing liquefied petroleum, manufactured, mixed or natural gas, the person conducting blasting operations shall notify the gas utility company having control of such gas at least three full working days (excluding Sundays or State holidays) prior to blasting. Such notice shall be in writing and served personally or by registered mail.

(i) Whenever blasting is conducted on a single project for a period longer than one day, a single notice of intention shall constitute compliance with (f), (g) and (h) above.

(j) Any person conducting blasting operations in the vicinity of utility lines shall use:

1. A blast hole drilling pattern and blast initiation procedure that will provide the greatest relief possible in the direction away from the utility line; and

2. A type of explosive specifically designed to prevent propagation between blast holes.

(k) All blasting operations in the vicinity of underground utility lines shall be conducted as follows:

1. The blast hole depth in the initial excavation shall be limited to the elevation of the top of the utility line plus one-half of the distance from the nearest blast hole to the utility line.

2. Subsequent excavations shall be limited to one-half the horizontal distance from the nearest blast hole to the utility line.

3. Under the conditions described in (k)1 and 2 above, the diameter of the blast hole shall not exceed three inches, and only one blast hole may be fired per delay period.

12:190-7.8 Proximity to highways

(a) Before blasting is to be performed within 100 feet of a highway, the authority having jurisdiction over the highway shall be notified.

(b) When blasting is conducted within 200 feet of a highway, a sufficient number of persons, each with a not less than two feet square red flag attached to a short shaft, shall be designated to prevent any vehicular traffic from entering the blast zone.

(c) When blasting mats are used in blasting operations 75 feet or more from a highway, the provisions of (b) above shall not apply.

12:190-7.9 Warning signs and signals

(a) A sign indicating blasting signals shall be posted at one or more conspicuous places where blasting operations are being conducted. The lettering on such signs shall be not less than four inches high on a contrasting background, and the sign shall read as follows or express an equivalent;

BLASTING WARNING SIGNALS
2 LONG SIGNALS—1ST WARNING
5 MINUTES TO BLASTING
1 LONG SIGNAL—FINAL WARNING
1 MINUTE TO BLASTING
2 SHORT SIGNALS—ALL CLEAR

(b) On all approaches to any blasting area, warning signs shall be posted. The lettering on such signs shall be not less than four inches high on a contrasting background, and the signs shall read as follows or express an equivalent:

DANGER
BLASTING ZONE
KEEP OUT

(c) On all approach roads to blasting areas where vehicles pass and blasting utilizing electric blasting caps is performed, warning signs shall be placed on the right shoulder of such roads approximately 350 feet from the blast area. The lettering on such signs shall be not less than four inches high on a contrasting background, and the sign shall read as follows or express an equivalent:

BLAST AREA
TURN OFF 2-WAY RADIO

(d) The person conducting blasting operations shall fix the time of blasting, check the blast area, post guards to keep all unauthorized persons out of the blast area, and sound the warning signals utilizing an effective warning device.

(e) When a warning device has been sounded, all persons not authorized to be in the blast area shall leave or take cover and not return until the all clear signal has been sounded.

12:190-7.10 Drilling blast holes

(a) The diagram or layout of all blast holes shall be prepared by the blaster and given to the driller when the blaster is not going to be present during the drilling.

(b) The surface shall be carefully examined to detect the possible presence of unfired explosive materials, and drilling shall not be performed in blast holes that have contained explosive materials.

(c) When a blast hole has been loaded, no drilling shall be performed within a distance less than the depth of the hole, but in no case less than 25 feet from the loaded blast hole. Drilling may be performed to free an obstructed blast hole not containing explosives, when all explosives in the vicinity have been located at a safe distance. Such drilling operations shall be under the direct supervision of the blaster.

(d) All blast holes shall be of sufficient diameter so that cartridges of explosive materials can be inserted to the bottom of the hole without excessive force.

(e) Any person drilling blast holes shall report in writing to the blaster any unusual conditions, such as voids or mud seams.

(f) When blasting is conducted within 10 feet of a construction, the line holes shall be drilled parallel to the construction and the line holes shall be as close as possible to the construction.

12:190-7.11 Planning and preparation for blasts

(a) The blaster shall plan each blast taking special precautions in loading, delaying, initiation and confinement so as to control the throw of fragments, ground vibration, and air blast effects.

(b) This subsection shall apply to the planning of any blasting exceeding 50 or more electric blasting caps or 100 or more pounds of explosives.

1. The blaster shall prepare a diagram showing the hole layout, delay periods and type of hook up.

2. When the blast holes are 10 feet or deeper, the diagram shall have a cross section of a typical hole showing overburden, face burden, depth, explosive used and stemming.

3. Any change made during the loading of blast holes shall be noted on the diagram. This diagram shall be filed with the blast report and may be substituted for the plan required by N.J.A.C. 12:190-3.19(c)20.

(c) In planning a blast, careful consideration shall be given to the initiating system of the explosive charges. The recommendations of the manufacturer of the explosive device to be used shall be followed.

(d) Sufficient, suitable stemming or tamping material shall be placed at the blast holes prior to delivery of explosives into the loading area. All equipment and tools not used for loading explosives into blast holes shall be removed from the loading area prior to delivery of explosives into the blast area. There shall be no activity in the loading area, other than loading of blast holes.

(e) Mobile equipment shall not be operated within 25 feet of loaded blast holes or within the normal throw of blasted material in front of a face being loaded, except as provided in N.J.A.C. 12:190-7.10(c) or when approved by the commissioner. This provision shall not apply to mobile equipment placing blasting mats or vehicles used in bulk loading.

(f) Only tools and equipment of nonsparking type shall be used to load blast holes. When loading blast holes underground or in other dark locations, only approved flood lamps, electric cap lamps or flashlights shall be used as illumination.

(g) Blast holes, prior to loading, shall be examined for alignment, water, blockage or other defects.

(h) All loaded holes shall be included in the next blast unless there is at least 100 feet separation between the loaded holes of the next blast and the holes being loaded for a subsequent blast.

(i) All warning signs shall be posted.

12:190-7.12 Initiation with electric detonators

(a) Precautions shall be taken to prevent accidental discharge of electric blasting caps from current induced by radar, radio transmitters, lightning, adjacent power lines, dust storms or other sources of extraneous electricity.

1. All blasting operations shall be suspended and all persons shall be removed from the blasting area during the approach and progress of an electric storm.

2. Signs warning against the use of mobile radio transmitters shall be posted on all roads within 350 feet of the blasting operations.

3. The blaster shall comply with Radio Frequency Radiation Hazards, IME No. 20-1978.

4. Before commencing blasting operations under high voltage electric power lines or in other areas suspected of having extraneous electric currents, the area shall be tested for extraneous electric current by a competent person using an instrument designed for this purpose. Where extraneous electric currents exceeding 0.05 ampere are found, the use of electric blasting is prohibited.

5. All electric equipment and energized power distribution circuits within a horizontal distance of 25 feet of the blast holes shall be turned off.

6. The leg wires of the electric blasting caps shall be kept shunted unless being tested or wired into the blasting circuit.

7. The firing line shall be kept shunted until immediately prior to the time of hook-up to the blasting machine or firing switch.

(b) Where electric blasting caps are used under electric power lines, the firing line shall be weighted down to prevent the line from coming in contact with the electric power lines.

(c) Due precautions shall be taken to ensure that the electric system will function properly.

1. All caps in a single blast shall be of the same type or function and of the same manufacture.

2. Care shall be exercised to ensure that an adequate quantity of delivered current is available in accordance with the manufacturer's recommendations.

3. The insulation on all electric lines to be used shall be adequate and in good condition and kept from the contact with any electric conductor outside the electric blasting circuitry.

4. The firing line shall have sufficient capacity to carry the firing current and shall in no case have the capacity to less than copper wire of No. 14 American Wire Gage.

5. Electric blasting caps shall be tested for continuity after the blast hole has been loaded and before the stemming is added.

(d) Precautions shall be taken in the sequence of wiring the blasting circuitry.

1. The wiring of the blasting circuitry shall not commence until the work can proceed to completion without interruption.

2. The electric blasting cap leg wires shall be connected and tested for continuity.

3. The leg wires shall be connected to the connecting wires or bus wires and tested for continuity.¹

4. The connection wires shall be connected to the firing line and tested for continuity. The firing line shall be reshunted.

5. All testing shall be done by a blasting ohmmeter designed for the purpose. The ohmmeter shall be kept in good condition and be periodically tested. A malfunctioning ohmmeter shall be repaired by the manufacturer or the manufacturer's assigned representative when used for this purpose.

(e) When blasting with a blasting machine, the blasting machine shall:

1. Be designed specifically for this purpose;
2. Be the rated capacity needed;
3. Be in good working condition;
4. Be tested at least once a month by procedures recommended by the manufacturer. A record of such testing shall be maintained by the blaster;
5. Be repaired only by the manufacturer or the manufacturer's representative; and
6. Placed in a safe location.

(f) Precautions shall be taken when firing from a power line source.

1. The firing circuitry shall not be grounded or placed where it can pick up the extraneous electric current.
2. The firing circuitry shall have sufficient capacity to carry the firing current. The capacity shall be at least of copper wire of No. 14 American Wire Gage.
3. The insulation on all firing lines shall be in good condition.
4. When in a tunnel or other narrow passage, the firing line shall be placed on insulators on the wall opposite other electric power lines.
5. There shall be a safety switch on each branch firing line.
6. The main permanent firing line shall be arranged to have a safety switch, at least a five foot lightning gap, and a power switch.
7. All switches for power circuits shall be the proper capacity, enclosed, capable of being locked in the "off" or "open" position, and be distinctively labeled.
8. The power source shall not exceed 550 volts.
9. All switches shall be kept locked unless firing a blast. The keys shall be entrusted only to the blaster.

¹ So in original.

12:190-7.13 Initiation with safety fuse and cap

(a) The safety fuse shall be in good condition. It shall not be kinked, bent sharply or handled roughly.

(b) Each spool of safety fuse shall be test burned to determine the burning rate. The burning rate shall be posted to assure that all persons using the fuse will know the burning rate.

(c) Blasting caps shall be crimped to the fuse only with a tool designed for that specific purpose. This work shall be performed at a safe location.

(d) Fuses shall be at least 48 inches long.

(e) Fuses shall be ignited with hot-wire lighter, lead spitters, ignitor cord, or other such devices designed for this purpose.

(f) Timing shall be such that the fuse in the last blast hole to fire is burning within the hole before the first blast hole fires.

(g) When more than five fuses are to be lighted, two individuals shall be present. No individual shall light more than 15 individual fires.

12:190-7.14 Initiation with detonating cord

(a) Detonating cord shall be in good condition, and have the proper core load and construction type for the work scheduled. It shall be kept free of kinks and sharp bends.

(b) Detonating cord down lines in blast holes shall be attached to a cap sensitive primer charge. Where the cord load is light, the detonating cord shall be attached to a special blasting cap which is to be inserted in the primer charge. The connections shall follow the manufacturer's recommendations. The down line shall be without splices.

(c) Delayed connectors and blasting caps, used with detonating cords shall be handled with the same safety precautions as other detonators.

(d) Detonating cord lines shall be cut free from the spool when the primer charge is in place.

(e) All detonating cord branch lines shall be connected to the surface trunk line with tight square knots or devices for this purpose. The branch line connections shall be at right angles to the trunk-line.

(f) When firing the detonating cord system with electric blasting caps, the caps shall be taped or fastened securely to the trunk line with the closed end of the cap pointing in the same direction the detonating cord is to fire. The cap shall not be attached until just before firing time.

(g) In areas where blast noise could be a problem, all detonating cord on the surface shall be covered with at least one foot of earth, sand or stone chips.

12:190-7.15 Initiation with other detonating systems

Detonating systems not specifically addressed in this subchapter shall be utilized in accordance with the manufacturer's recommendation.

12:190-7.16 Explosives at blasting site

(a) The amount of explosives taken into the blasting area shall not exceed the amount estimated by the blaster as necessary for the day's blasting.

(b) Damaged or deteriorated explosives shall not be delivered to the blast site.

(c) Only commercially manufactured explosive materials acceptable to the Commissioner shall be used for blasting operations.

(d) Explosives may be piled near blast holes at the blast site where the public is prohibited.

(e) The explosives shall be kept in small separate piles so as to prevent propagation of an explosion in the event of a premature explosion at any portion of a blast site.

(f) At blasting sites in close proximity to the public, all explosive materials shall be stored in Type 3 magazines until immediately before being loaded into blast holes.

(g) Blasting caps at the blast site shall be stored at a safe distance from all other explosive materials at blasting sites.

(h) Explosive materials for a subsequent blast shall be kept in an approved magazine, or on the vehicle transporting explosives at a blasting site parked according to Table 5.10 and shall be attended.

(i) When blasting underground or in confined spaces, natural or artificial ventilation adequate to prevent a toxic gas exposure to any person shall be provided.

(j) Explosives at a blast site shall not be left unattended.

(k) Explosives shall not be abandoned, buried or covered over by any materials as a means of disposal.

(l) All surplus explosives materials after loading blast holes shall comply with N.J.A.C. 12:190-7.16(h).

(m) All empty explosive material packages and packing shall be removed to a safe place and burned after the blast has been fired.

12:190-7.17 Blast hole loading

(a) Blasting operations shall be under the direct supervision of a blaster holding the proper grade permit to use explosives.

(b) Only persons authorized by the blaster and authorized government personnel shall be allowed in the blast area.

(c) The blast hole loading crew shall be limited to four helpers for each blaster holding a permit to use explosives. When two or more blasting crews are used, the crews shall be separated by a practical distance consistent with efficient operation and supervision of crews.

(d) No intoxicating liquors or drugs shall be allowed in the blast area. No persons under the influence of intoxicating liquors or drugs shall be allowed in the blast area.

(e) No smoking or open flame devices shall be allowed within 100 feet of the blast area except for devices used in the lighting of safety fuse.

(f) All handling and use of static sensitive explosive materials shall be immediately discontinued upon the approach of a thunderstorm and all persons in the area shall immediately seek a safe place.

(g) When preparing initiating primers, the work shall be performed adjacent to the blasthole just prior to using the primer. A nonsparking punch shall be used for the making of the hole in the explosive cartridge so that the detonator can be completely encased in the cartridge freely.

(h) Primer cartridges shall not be split, dropped, forced, tamped, or abused in any way when inserting them in the blast hole.

(i) The loading of the blast holes shall be as close to scheduled firing time as possible. When there is a delay, the loaded blast holes shall be under the observation of a guard stationed in the area.

(j) No explosive materials shall be loaded into a blast hole and left overnight without the approval of the Commissioner.

(k) The blaster, during the loading operation, shall have a helper, or the blaster shall be under the direct observation of another person capable of assisting in emergencies.

12:190-7.18 Firing the blast holes

(a) Before firing a blast which could cause injury to persons or damage to property from fly-rock, the material to be blasted shall be properly covered with blasting mats.

(b) The blaster shall fix the time of blasting.

(c) Prior to connecting the firing line to the blasting machine or permanent firing line, the blaster shall be certain that all persons have been cleared from the blast area, all approaches to the blast area are guarded, the traffic stopped when blasting in proximity to highways, and the proper warning signals sounded.

(d) The blaster shall designate a competent person to operate the blasting machine when duties associated with the blasting operation require the blaster's attention in operational area of the blast.

12:190-7.19 Inspection after blasting

(a) Immediately after a blast has been fired, the firing line shall be disconnected from the blasting machine and all blasting lines shall be shunted. When firing from an electric power source in underground blasting, the switches shall be locked in an "Off" or "Open" position and the lightning gap shall be open.

(b) No person shall enter an underground blast area until at least 15 minutes has elapsed after a blast.

(c) The blast site shall be inspected to determine if all charges have been fired before work is resumed.

(d) If explosives or blasting agents are suspected of burning in a blast hole, all persons in the blast area shall move to a safe location and no person shall return to the blast area for at least one hour.

12:190-7.20 Misfires

(a) When a misfire is discovered, the blaster shall provide proper safeguards and notify his employer.

(b) No work shall be done except that necessary to remove the hazard of the misfire and only those employees necessary to do the work shall remain in the danger zone.

(c) When broken wires, faulty connections or short circuits are determined to be the cause of a misfire, proper repairs shall be made and the charge refired, provided the burden has not been dangerously weakened.

(d) When the blast hole cannot be refired, the stemming may be removed from the misfired blast hole by the use of compressed air, water, or other suitable means. A new priming charge may be added, the hole restemmed, and fired providing there is no danger of fly-rock or other hazards. The use of the drill to remove stemming shall be prohibited.

(e) When unfired explosives are found in a muck pile, the blaster shall carefully remove rock broken by the blast of adjacent holes, maintaining a sharp lookout for loose explosives until the blast hole containing the charge that failed is exposed. Should the danger of fly-rock be too great for refiring the misfired blast hole, the explosives charge shall be washed out.

(f) If conditions preclude the procedure described in (e) above, the blaster in charge shall safeguard the area and notify the Office of Safety Compliance. All work in the danger area shall cease pending a joint investigation by the blaster and the Office of Safety Compliance.

12:190-7.21 Breaking boulders

(a) While loading block holes, other work shall not be allowed in the immediate area.

(b) Block holes shall contain at least 85 percent stemming material.

12:190-7.22 Bulk loading

(a) No person shall drive a vehicle or equipment over electric blasting caps, leg wires, connecting wires, detonating cord, or other explosive materials.

(b) Liners shall not be used in blast holes, unless proper precautions are taken to prevent the accumulation of static electricity.

(c) Only truck mounted or portable units for mixing or loading blasting agents shall be used.

(d) The mixing and loading of blasting agents at the blast site for immediate use may be permitted under the following conditions;

1. When under the direct supervision of a licensed blaster;

2. When in a reasonably safe location, considering the quantities involved;

3. When using equipment, materials and methods approved by the commissioner as adequate to provide for proper and safe mixture without frictional heating, compaction or confinement; and

4. When in quantities at locations which are appropriate for storage, handling and transportation of blasting agents.

(e) Loading equipment shall be removed from the blast site promptly after the loading of the boreholes is completed.

12:190-7.23 Pneumatic loading of explosives

(a) Pneumatic loading equipment shall be constructed of materials compatible with the type of explosive materials to be used.

(b) Pneumatic loading equipment shall be used according to the recommendation of its manufacturer.

(c) A positive grounding device shall be used to prevent the accumulation of static electricity in the system. The ground shall be separated from any water line, air line, rail or permanent electrical grounding system.

(d) The air supply hose shall be nonconductive.

(e) The discharge hose shall be semi-conductive.

(f) All systems shall be evaluated by a competent person to insure that they will adequately dissipate static under potential field conditions.

(g) The compressed air supply shall be free of solid particles greater than 20 mesh size.

(h) The air pressure to the pneumatic loader shall not exceed the recommendations of the manufacturer. If necessary the supply shall be controlled by a pressure regulating valve in the air supply line. A pressure relief valve set at 10 percent above the loader's operating pressure shall be placed in the line ahead of the regulating valve.

(i) The temperature of the air supplied to the pneumatic loader shall not exceed 150 degrees F.

(j) When electric detonators are used, the leg wires shall be placed outside the discharge hose and kept away from the metal parts of the loader.

(k) The pneumatic loader shall not be used to place stemming in the blast hole.

12:190-7.24 Demolition

(a) Any person responsible for demolition by explosives shall comply with all applicable provisions of this chapter.

(b) A person intending to demolish by explosives any construction which exceeds 25 feet in height shall notify the Office of Safety Compliance at least 14 days in advance of the demolition.

(c) Where a construction is to be demolished by explosives which is within 200 feet of a public way or another construction not included in the demolition project, the notification required by (b) above shall be in writing and provide the following information:

1. Name, address and owner of the construction to be demolished;
2. Name of the general contractor at the demolition site;
3. Name of the blasting contractor at the demolition site;
4. Height and type of construction to be demolished;
5. A control map on a scale sufficient to show all constructions, streets, utilities and other pertinent objects within 300 feet of the demolition site;
6. Name and address of the police official responsible for traffic safety in the vicinity of the demolition site; and
7. Name and address of the construction official at the demolition site.

(d) A person intending to demolish any high construction in a congested area shall present a blast plan showing the placement of explosives and initiation sequences to the Commissioner as soon as possible.

(e) The Commissioner may require a test blast to determine the feasibility of the plan before approval of the plan.

(f) Upon approval by the Commissioner, the person in charge of the demolition project shall cooperate with the construction official in providing for traffic and crowd control in the vicinity of the demolition site up to and at the time of firing the blast. The person in charge of the demolition project shall arrange a meeting with the construction official, Office of Safety Compliance and himself to finalize all plans at least 20 hours before the firing time.

(g) Explosives for the demolition shall not be brought into the demolition site, until all salvage, pre-weakening testing, and similar activities are completed.

(h) All explosives at the demolition site shall be stored in a type 2 or type 3 magazine and shall be attended at all times up to the time of firing in a manner approved by the Commissioner and the construction official.

(i) At least 18 hours shall be provided between the completion of salvage and other work and the firing time to allow for the placement of explosives charges and the preparations of the precautions necessary to prevent flying materials which could cause injury to persons or property damage.

(j) Unconfined explosive charges such as detonating cord, shape charges and kickers shall be covered with energy absorbing materials which will reduce the air blast effects from the detonation of the explosives.

(k) Only explosives commercially designed for the type of demolition being conducted shall be used unless the Commissioner approves the use of substitutes.

(l) Prior to the detonation of the explosives, a two way communication system shall be established between the police official maintaining crowd control and traffic safety and the blaster firing the blast.

(m) The police official in charge of crowd control and traffic safety at the demolition site shall notify the blaster firing the blast prior to the final blast warning signal if the designed safety area surrounding the demolition site is not clear.

12:190-7.25 Air blast effects

(a) This section shall apply to air blast effects on constructions that are neither owned nor leased by the person conducting or contracting for the blasting operation.

(b) The maximum allowable air blast at any inhabited construction resulting from blasting operations shall not exceed 130 decibels peak when measured by an instrument having a flat frequency response (± 3 decibels) over the range of at least 6 to 200 Hertz.

(c) The maximum allowable air blast at any construction resulting from blasting operations shall not exceed 140 decibels peak when measured by an instrument having a flat response (± 3 decibels) over the range of at least 6 to 200 Hertz.

(d) When blasting is of a continuing nature, 124 to 130 decibels shall be the caution range. When air blast effects are consistently within the caution range, the blast shall be examined, and if found necessary, shall be changed so as to reduce air blast effects on subsequent blasts.

(e) For determining compliance with this section, an approved instrument that is operated by a competent person shall be used. An approved instrument shall include the concept that the instrument has been calibrated in accordance with the manufacturer's recommendations.

12:190-7.26 Ground vibration

(a) This section shall apply to ground vibrations on constructions that are neither owned nor leased by the person conducting or contracting for the blasting operation.

(b) Blasting at a demolition site is addressed in N.J.A.C. 12:190-7.24.

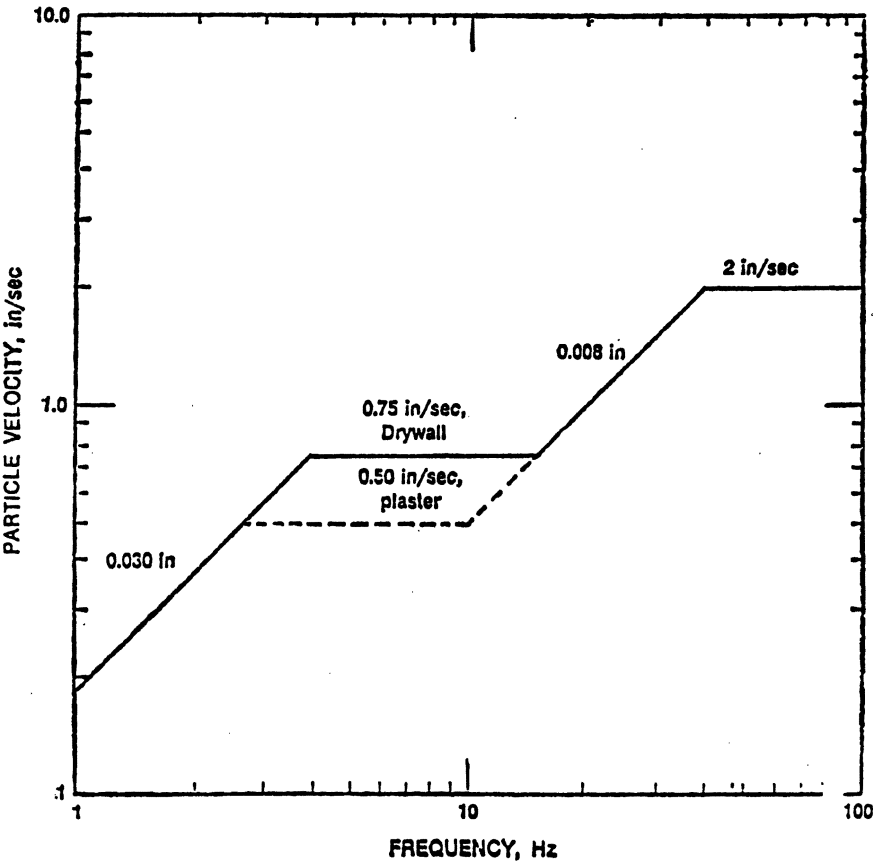
(c) In planning any blast, consideration shall be given to the necessary precautions to protect property from damage and to reduce annoyance to the public.

(d) The ground vibrations resulting from blasting operations in the vicinity of constructions shall not exceed the levels shown in Figure 7.26(d).

(e) To stay within the criteria of (d) above, blasting operations shall be conducted in accordance with (f) or (g) below.

(f) This subsection shall apply to ground vibration limits for blasting operations conducted without measuring each blast with approved seismic instrumentation.

Figure 7.26(d)
Safe Blasting Criteria
U.S. Bureau of Mines, Report RI 8507



1. The maximum amount of explosives detonated per delay period of eight milliseconds or greater shall not exceed the limits shown in Table 7.26(f).

Table 7.26(f) Distance for a Given Weight of Explosives			
Distance to a Construction feet feet over not over	Weight of Explosives per Delay pounds	Distance to a Construction feet feet over not over	Weight of Explosives per Delay pounds
0 to 10	1/8	260 to 280	30
10 to 15	1/4	280 to 300	36

Distance to a Construction feet feet over not over	Weight of Explosives per Delay pounds	Distance to a Construction feet feet over not over	Weight of Explosives per Delay pounds
15 to 20	1/2	300 to 325	39
20 to 25	3/4	325 to 350	46
25 to 30	1	350 to 375	53
30 to 40	1 1/2	375 to 400	60
40 to 50	2 1/4	400 to 450	68
50 to 60	3 1/4	450 to 500	75
60 to 70	4 1/2	500 to 600	86
70 to 80	6 1/4	600 to 700	117

Distance to a Construction feet	Weight of Explosives per Delay pounds	Distance to a Construction feet	Weight of Explosives per Delay pounds
over 80 to 90	7	over 700 to 800	156
90 to 100	8	800 to 900	200
100 to 110	9	900 to 1000	230
110 to 120	9½	1000 to 1100	260
120 to 130	10½	1100 to 1200	295
130 to 140	11½	1200 to 1300	320
140 to 150	12	1300 to 1400	370
150 to 160	12½	1400 to 1500	430
160 to 170	13	1500 to 1600	490
170 to 180	13½	1600 to 1700	555
180 to 190	14½	1700 to 1800	625
190 to 200	15½	1800 to 1900	643
200 to 220	17½	1900 to 2000	675
220 to 240	21	2000 to 2100	690
240 to 260	25	over 2100	*

Note to Table

* For distances over 2,100 feet, the following scaled distance equation shall be used:

$$\text{Weight} = \frac{\text{Distance}^2}{80}$$

(g) This subsection shall apply to ground vibration limits for blasting operations when it is elected to monitor each blast with an approved peak particle velocity recorder.

1. The blasting shall be conducted so that the peak particle velocity does not exceed the limits of Table 7.26(g).

Table 7.26(g)
Distance Versus Peak Particle Velocity

Peak particle Velocity *	Distance
inches per second	feet
2.0	0 to 100
1.5	100 to 500
1.0	500 to 1000
0.75	1000 to 2000
0.50	over 2000

Note to Table

* The instrument's transducer shall be firmly coupled to the ground.

(h) When starting to monitor a new blast site with instrumentation, the first blast design shall be close to the limits established in Table 7.16(f). From this starting point, the blast design may be increased to a point which will keep the ground vibration within the limits of Table 7.26(g).

(i) Where it is found that the ground vibrations are not within the damage criteria of Figure 7.26(d) due to blast design or changing geological conditions, the commissioner may approve a modified vibration control for this blasting site.

(j) Any approved system of instrumentation which is capable of recording in the mode required for compliance with Figure 7.26(d) shall be acceptable.

(k) Any approved system of instrumentation giving a response spectra analysis to show compliance with Figure 7.26(d) shall be acceptable.

(l) At any site where blasting is of a continuing nature with the blast design unchanged and geological conditions unchanging, the Commissioner may be petitioned to set a modified scaled distance equation for this site. The modified scaled distance equation shall replace Table 7.26(f) and Table 7.26(g) for this site. The petition shall include:

1. A written statement stating the reasons for the request; and
2. A map showing residences within a radius of 3000 feet of the blast site.
3. A proposed method of establishing a modified scaled distance.

(m) The method of establishing a modified scaled distance equation for a particular blast site shall include the following:

1. The ground vibration produced by at least three blasts shall be recorded on field instruments complying with (k) or (l) above.
2. One instrument shall be placed at the nearest construction. One instrument shall be placed 2000 feet from the blast site. The third instrument shall be placed midway between the first and second instrument.
3. The data shall be interpreted by a competent person and made available to the Commissioner.

(n) The test blasts shall not be conducted without prior approval of the Commissioner. A representative of the Commissioner shall be present at all test blasts.

(o) When the test blasts show the ground vibrations to be well within the criteria established in Figure 7.26(d), a modified scaled distance equation shall be prepared and presented for approval.

(p) Upon approval, the modified scaled distance equation may be used at the blast site in place of Table 7.26(f) and Table 7.26(g). This scaled distance equation may be used as long as it is verified every four months by the procedure established in (m) above.

(q) The commissioner may order new testing, when there is any change in the conditions from the original test.

(r) Where it is found that the approved modified scaled distance formula is willfully disregarded, the approval shall be withdrawn.

(s) All instruments used for monitoring blast vibrations for compliance with this section shall be approved, and operated by, and the recordings read, by a competent person.

(t) The instrument shall be calibrated once a year or have an internal calibration capability.

SUBCHAPTER 8. (RESERVED)

SUBCHAPTER 9. BLASTING AGENTS

12:190-9.1 Scope of subchapter

(a) This subchapter shall apply to the storage, handling and mixing of blasting agents.

(b) Unless otherwise set forth in this chapter, blasting agents shall be stored in the same manner as other explosives.

(c) The construction and operation of motor vehicles for the bulk delivery and mixing of blasting agents in transportation off-the-highway shall comply with the applicable sections of N.J.A.C. 12:190-6.

Amended by R.1988 d.16, effective January 4, 1988.
See: 19 N.J.R. 1883(a), 20 N.J.R. 99(b).

12:190-9.2 Location of mixing facilities

(a) Buildings or other facilities used for mixing blasting agents shall be located, with respect to inhabited buildings, passenger railroads and public highways in accordance with N.J.A.C. 12:190-5.

(b) In determining the distance separating highways, railroads, and inhabited buildings from mixing facilities, the sum of all masses which may propagate from either individual or combined donor masses shall be included in the calculations. However, when ammonium nitrate must be included only 50 percent of its weight shall be used.

12:190-9.3 (Reserved)

Amended by R.1988 d.16, effective January 4, 1988.
See: 19 N.J.R. 1883(a), 20 N.J.R. 99(b).
Section was "Mixing buildings".

12:190-9.4 Equipment used in mixing

(a) Equipment used for mixing blasting agents shall conform to this section.

(b) The design of the mixer shall minimize the possibility of frictional heat, compaction, and especially confinement. All bearings and drive assemblies shall be mounted outside the mixer and be protected against accumulations of dust. All surfaces shall be accessible for cleaning.

(c) Mixing and packaging equipment shall be constructed of materials compatible with the fuel-ammonium nitrate composition.

(d) Suitable means shall be provided to prevent the flow of fuel oil to the mixer. In gravity flow systems, an automatic spring-loaded shutoff valve with fusible link shall be installed.

12:190-9.5 Compositions

(a) The provisions of this section shall be considered when determining blasting agent compositions.

(b) The sensitivity of the blasting agent shall be determined by means of a No. 8 test blasting cap at regular intervals after every change in formulation, or as may be required by the Commissioner.

(c) Oxidizers of small particle size, such as crushed ammonium nitrate prills or fines, may be more sensitive than coarser products and shall be handled with greater care.

(d) No hydrocarbon liquid fuel with flash point lower than that of No. 2 fuel oil (125 degrees F minimum or legal) shall be used.

(e) Crude oil and crankcase oil shall not be used because they may contain light ends that offer increased vapor-explosion hazards or gritty particles that tend to sensitize the resulting blasting agent.

(f) Peroxides and chlorates shall not be used.

(g) Metal powders, such as aluminum shall be kept dry and shall be stored in containers or bins which are moisture-resistant or weather-tight. Solid fuels shall be used to minimize dust explosion hazards.

(h) The provisions of (d), (e) and (f) above shall not apply to compositions made under the supervision of a qualified person engaged in research and development capable of determining the overall hazard of the resulting product in its manufacture, storage, or use.

12:190-9.6 Precautions at mixing plants

(a) Precautions at mixing plants shall include the following as provided by this section.

(b) Floors shall be constructed so as to eliminate floor drains and piping into which molten materials could flow and be confined in case of fire.

(c) The floors and equipment of the mixing and packaging room shall be cleaned regularly and thoroughly to prevent accumulation of oxidizers, fuels, or other sensitizers.

(d) The entire mixing and packaging building shall be cleaned regularly and thoroughly to prevent excessive accumulation of dust.

(e) Casual sources of ignition and firearms (except firearms carried by guards when authorized by police authorities) shall not be permitted inside of or within 50 feet of any building or facility used for the mixing of blasting agents.

(f) The land surrounding the mixing building shall be kept clear of brush, dried grass, leaves and other combustible materials for a distance of at least 25 feet.

(g) Empty ammonium nitrate bags shall be disposed of in a safe manner daily.

(h) No welding shall be permitted or open flames used in or around the mixing or storage area of the plant unless the equipment or area has been completely washed down and all oxidizing material removed.

(i) Before welding or repairs to hollow shafts, all oxidizing material shall be removed from the outside and inside of the shaft and the shaft vented with a minimum one half inch diameter opening.

(j) Explosives shall not be stored inside of or within 50 feet of any building or facility used for the mixing of blasting agents.

12:190-9.7 Pneumatic unloading from bulk mix delivery motor vehicles

(a) Pneumatic loading from bulk mix delivery motor vehicles into blast holes primed with electric blasting caps or other static-sensitive systems shall conform to this section.

(b) A positive grounding device shall be used to prevent the accumulation of static electricity.

(c) A discharge hose shall be used that has a resistance range that will prevent conducting stray currents, but that is conductive enough to bleed off static buildup.

(d) A qualified person shall evaluate all systems to determine if they will adequately dissipate static under potential field conditions.

12:190-9.8 Bulk storage bins

(a) The bin shall be a Type 4 magazine and shall be waterproof.

(b) The bin, including supports, shall be constructed of compatible materials, and adequately supported and braced to withstand the combination of all loads, including impact forces arising from product movement within the bin and accidental vehicle contact with the support legs.

(c) The bin discharge gate shall be designed to provide a closure tight enough to prevent leakage of the stored product. Provision shall also be made so that the gate can be locked.

(d) Bin loading manways or access hatches shall be hinged or otherwise attached to the bin and be designed to permit locking.

(e) Any electrically driven conveyors for loading or unloading bins shall conform to the National Electrical Code, NFPA No. 70-1987. The conveyors shall be designed to minimize damage from corrosion.

(f) Bins containing blasting agents shall be located in accordance with Table 5.10 of N.J.A.C. 12:190-5.

(g) Bins containing ammonium nitrate shall be separated from blasting agent storage and other explosives storage in accordance with Table 5.10 of N.J.A.C. 12:190-5.

(h) Good housekeeping practices shall be maintained around any bin containing ammonium nitrate or blasting agents. This includes keeping weeds and other combustible materials cleared within 25 feet of such bin. Accumulation of spilled product on the ground shall be prevented.

Amended by R.1988 d.16, effective January 4, 1988.
See: 19 N.J.R. 1883(a), 20 N.J.R. 99(b).

12:190-9.9 Storage of blasting agents and supplies

(a) This section shall apply to the storage of blasting agents and oxidizers used for mixing of blasting agents.

(b) Blasting agents or ammonium nitrate, when stored in conjunction with explosives, shall be stored as provided in N.J.A.C. 12:190-5. The mass of blasting agents and one-half the mass of ammonium nitrate shall be included when computing the total quantity of explosive materials for determining distance.

(c) Blasting agents, when stored entirely separate from explosives, shall be stored in a Type 4 magazine or a magazine of higher classification (lower number).

(d) Magazines in which blasting agents are stored shall be constructed so as to eliminate open floor drains and piping into which molten materials could flow and be confined in case of fire.

(e) Semi-trailers or full-trailers used for highway or on-site transportation of the blasting agents may be used for temporarily storing these materials, provided they are located in accordance with N.J.A.C. 12:90-5. Trailers shall be provided with substantial means for locking, and the trailer doors shall be kept locked, except during the time of placement and removal of stocks of blasting agents.

(f) Piles of ammonium nitrate and warehouses containing ammonium nitrate shall be separated adequately from readily combustible fuels.

(g) Caked oxidizers, either in bags or in bulk, shall not be loosened by blasting.

(h) Every magazine used for the storage of blasting agents shall be under the supervision of a competent person who shall be not less than 21 years of age.

SUBCHAPTER 10. SMOKELESS POWDER AND BLACK POWDER

12:190-10.1 Scope of subchapter

(a) This subchapter shall apply to:

1. The storage of smokeless powder and black powder for the reloading of small arms ammunition; and
2. The channels of distribution for the users of smokeless powder and black powder.

(b) This subchapter shall not apply to the storage or processing of smokeless powder and black powder during the manufacturing process.

12:190-10.2 Smokeless powder

(a) A cabinet for smokeless powder shall have walls at least one inch thick, with an interior of nonsparking material. Shelves shall not exceed a three foot separation. The cabinet shall have at least one lock and hinges and hasps that cannot be removed when the door is closed and locked.

(b) Smokeless powder not exceeding 100 pounds intended for personal use may be stored in a residence. Smokeless powder not exceeding 36 pounds stored in residences shall be in approved USDOT shipping containers. Smokeless powder exceeding 36 pounds but not exceeding 100 pounds stored in a residence shall be in a cabinet, and not more than one cabinet shall be used.

(c) Smokeless powder not exceeding 400 pounds intended for resale shall be stored in a warehouse or storage room which is not accessible to unauthorized personnel, or as provided in (d) below.

(d) Smokeless powder not exceeding 400 pounds intended for resale shall be stored in non-portable storage cabinets as follows:

1. Not more than two cabinets in a building and not more than 200 pounds of smokeless powder in a single cabinet.
2. Cabinets located against walls of the warehouse or storage room with a minimum separation of 10 feet between cabinets.
3. Cabinets separated from flammable liquids, flammable solids and oxidizing materials by a wall having a fire resistance rating of not less than one hour or by a distance of 25 feet.

(e) Smokeless powder exceeding 400 pounds shall be stored in accordance with N.J.A.C. 12:190-5.

12:190-10.3 Black powder

(a) Black powder not exceeding 50 pounds may be stored in a residence. Black powder not exceeding five pounds stored in a residence shall be in approved USDOT shipping containers. Black powder exceeding five pounds but not exceeding 50 pounds in a residence shall be in a type 4 magazine.

(b) Black powder not exceeding 50 pounds intended for resale may be stored in any building and shall be in a type 4 indoor magazine.

(c) Black powder exceeding 50 pounds shall be stored in a type 4 outdoor magazine, outside of buildings.

12:190-10.4 Smokeless powder and black powder

If smokeless powder is stored in the same magazine with black powder, the total quantity of explosives so stored shall not exceed that permitted for black powder.

12:190-10.5 Conditions for sale

No person shall sell, give or deliver any smokeless powder or black powder to any person for any use unless such person has a valid permit for such use, except that smokeless powder in amounts not to exceed 36 pounds and black powder not to exceed five pounds may be sold to private persons for use in reloading small arms ammunitions for personal use and not resale.

SUBCHAPTER 11. SALE OF EXPLOSIVES

12:190-11.1 Scope of subchapter

(a) This subchapter shall apply to the sale of commercial explosives, except as provided in (b) below.

(b) This subchapter shall not apply to the sale of explosives under contract to the U.S. Government nor to the sale of explosives from one manufacturer to another manufacturer.

12:190-11.2 Prohibitions

(a) No person shall sell, display or expose for sale any commercial explosives on any highway, street, sidewalk, public way or public place.

(b) Before a product line of explosives is offered for sale, the seller shall file a complete description of the explosives and packaging to be used to comply with this provision.

(c) No person shall sell, give or deliver explosives to any person not in possession of a valid permit to sell, store or use explosives. This provision shall not apply to an authorized representative of a valid permit holder who is on a certified list by the permit holder.

(d) No person shall sell, deliver or transfer explosives to a person whose possession of such explosives would constitute a violation of this chapter.

(e) No person shall load explosives onto a buyer's vehicle which readily can be observed to be not in compliance with N.J.A.C. 12:190-6.

Amended by R.1988 d.16, effective January 4, 1988.
See: 19 N.J.R. 1883(a), 20 N.J.R. 99(b).

SUBCHAPTER 12. STANDARDS AND PUBLICATIONS REFERRED TO IN THIS CHAPTER

12:190-12.1 Documents referred to by reference

(a) The full title and edition of each of the standards or publications referred to in this chapter are as follows:

1. 27 CFR Part 181, Commerce in Explosives;
2. 49 CFR Parts 171 through 179, Hazardous Materials Regulations;
3. 49 CFR Parts 390 through 397, Federal Motor Carrier Safety Regulations;
4. IME Safety Library Publications No. 29-1978, Radio Frequency Radiation Hazards;
5. NFPA No. 70-1987, National Electrical Code;
6. N.J.A.C. 12:194, Model Rocketry;
7. N.J.S.A. 21:1A-128 et seq., Explosives Act;
8. N.J.S.A. 21:2-1 et seq., Manufacture, Storage and Transportation of Fireworks;
9. N.J.S.A. 21:3-1 et seq., Sale and Public Display of Fireworks;
10. 18 USC Chapter 44, Gun Control Act of 1968;
11. 29 USC 651 et seq., Occupational Safety and Health Act; and
12. USPC-1980-20th Edition, United States Pharmacopeia.

Amended by R.1988 d.16, effective January 4, 1988.
See: 19 N.J.R. 1883(a), 20 N.J.R. 99(b).

12:190-12.2 Availability of documents for inspection

A copy of each of the standards and publications referred to in this chapter is on file and may be inspected at the following office of the Division of Workplace Standards between the hours of 9:00 A.M. and 4:00 P.M. on normal working days:

New Jersey Department of Labor
Division of Workplace Standards
4 Station Plaza
East State Street and South Clinton Avenue
Trenton, New Jersey

Amended by R.1988 d.16, effective January 4, 1988.
See: 19 N.J.R. 1883(a), 20 N.J.R. 99(b).

12:190-12.3 Availability of documents from issuing organizations

Copies of the standards and publications referred to in this chapter may be obtained from the organizations listed below. The abbreviations preceding these standards and publications have the following meaning and are the organizations issuing the standards and publications listed in N.J.A.C. 12:190-12.1.

- CFR— Code of Federal Regulations
Copies available from:
Superintendent of Documents
Government Printing Office
Washington, D.C. 20402
- IME— Institute of Makers of Explosives
1575 Eye Street, N.W.
Suite 550
Washington, D.C. 20005
- MPC— Mark Publishing Company
20th and North Hampton Streets
Easton, Pennsylvania 18042
- NFPA— National Fire Protection Association
Batterymarch Park
Quincy, MA 02269
- N.J.A.C.— New Jersey Administrative Code
Copies available from:
Construction Code Enforcement Section
Department of Community Affairs
363 West State Street
Trenton, New Jersey 08608
- N.J.S.A.— New Jersey Statutes Annotated
Copies available from:
Office of Safety Compliance
New Jersey Department of Labor
CN 386
Trenton, New Jersey 08625
- 18 USC— United States Code
Copies available from:
Bureau of Alcohol, Tobacco and Firearms
Department of the Treasury
2 Penn Center Plaza, Room 360
Philadelphia, Pennsylvania 19102
- 29 USC— United States Code
Copies available from:
Occupational Safety & Health Administration
Department of Labor
1515 Broadway
New York, New York 10036

Amended by R.1988 d.16, effective January 4, 1988.
See: 19 N.J.R. 1883(a), 20 N.J.R. 99(b).