TITLE 37, PART I, Subpart B. FLAMMABLE AND COMBUSTIBLE LIQUIDS

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CHAPTER 11. PRELIMINARY PROVISIONS

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Authority

The provisions of this Chapter 11 issued under act of April 27, 1927 (P. L. 450, No. 291) (35 P. S. §§ 1181–1194), unless otherwise noted.

Source

The provisions of this Chapter 11 adopted October 12, 1971, effective October 23, 1971, 1 Pa.B. 2018, unless otherwise noted.

GENERAL PROVISIONS

§ 11.1. Definitions.

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

API–The American Petroleum Institute.

ASA–American Standard Code.

ASTM–American Standards for Testing and Materials.

Act–The act of April 27, 1927 (P. L. 450, No. 291) (35 P. S. §§ 1181–1194).

Aircraft service station–That portion of a property where flammable or combustible liquids used as aircraft fuel are stored or dispensed from fixed equipment and including all facilities essential thereto.

Apartment house–A building or that portion of a building containing more than two units.

Approved–Acceptance by the fire marshal of design, equipment, installation or intended use as required by this subpart.

Automotive service station–That portion of a property where flammable or combustible liquids used as motor fuels are stored and dispensed from fixed equipment into the fuel tanks of motor vehicles.

Barrel–A volume of 42 U. S. gallons.

Boiling point–The boiling point of a liquid at a pressure of 14.7 p.s.i.g. Where an accurate boiling point is unavailable for the material in question, or for mixtures which do not have a constant boiling point, for purposes of this classification the initial point of a distillation performed in accordance with the ASTM standard method of test for distillation of petroleum products may be accepted in lieu of the boiling point of the liquid.

Boilover–The expulsion of crude oil from a burning tank. The light fractions of the crude oil burn off, producing a heat wave in the residue, which on reaching a water strata may result in the expulsion of a portion of the contents of the tank in the form of a froth.

Bulk plant–That portion of a property where flammable or combustible liquids are received by tank vessel, pipe line, tank car or tank vehicle, and are stored or blended in bulk for the purpose of distributing the liquids by tank vessel, pipe line, tank car, tank vehicle or container.

Centralized fuel oil distribution system–A system of piping, by which oil is supplied from a separate central supply tank or tanks to one or more buildings, mobile homes, travel trailers or other structures.

Closed container–A container so sealed by means of a lid or other device that neither liquid nor vapor will escape from it at ordinary temperatures.

Combustible liquid–A liquid having a flash point at or above 100ºF and below 200ºF.

Commercial or industrial establishment–A place wherein the storage, handling or use of flammable or combustible liquids is incidental to but is not the principal business or process.

Container–Any vessel of 60 U. S. gallons or less capacity; used for transporting or storing flammable or combustible liquids. A container shall be made of metal, or be of approved nonmetallic construction.

Crude petroleum–Hydrocarbon mixtures that have a flash point below 150ºF and which have not been processed in a refinery.

DOT–The Department of Transportation of the Commonwealth.

Fire and Panic Act–The act of April 27, 1927 (P. L. 465, No. 299) (35 P. S. §§ 1221–1235).

Fire marshal–Director of the Pennsylvania State Police, Fire Marshal Division.

Flammable liquid–A liquid having a flash point below 100ºF and having a vapor pressure not exceeding 40 pounds per square inch absolute at 100ºF; such liquids shall be known as class I liquid.

Flash point–The flash point of the liquid shall mean the temperature at which the liquid gives off vapor sufficient to form an ignitable mixture with the air near the surface of the liquid or within the vessel used as determined by the following tests procedure and apparatus:

(i) The flash point of liquids having a flash point at or below 175ºF, except for fuel oils and certain viscous materials, shall be determined in accordance with the standard method of test for flash point by the Tag closed tester.

(ii) The flash point of liquids having a flash point above 175ºF, except for fuel oils, shall be determined in accordance with the standard method of test for flash point by the Cleveland open cup tester.

(iii) The flash point of fuel oil, and certain viscous materials having a flash point at or below 175ºF, shall be determined in accordance with the standard method of test for flash point by the Pensky-Martens closed tester.

GPM–Gallons per minute.

Inflammable–Flammable.

Liquid–When not otherwise identified, both flammable and combustible liquids.

Listed–Devices and materials that have been investigated by and meet the listing requirements of a nationally recognized testing agency. The equipment shall be identifiable by means of a label or other distinguishing marking specified in listings published by the testing agency.

Marine service station–That portion of a property where flammable or combustible liquids used as motor fuels are stored and dispensed from fixed equipment on shore, piers, wharves, barges or floating docks into the fuel tanks of motor craft, including all facilities used in that connection.

Nationally recognized testing laboratory–Includes:

(i) Underwriters Laboratories, Incorporated, 333 Pfingsten Road, Northbrook, Illinois 60062.

(ii) Factory Mutual System, 1151 Boston-Providence Turnpike, Norwood, Massachusetts 02062.

(iii) Applied Research Laboratories of Florida, Incorporated, 5371 N.W. 161 Street, Miami, Florida 33014, and such other testing laboratories as may from time to time be added by the State Police Fire Marshal upon submission of satisfactory evidence supporting a request by a laboratory for recognition as such.

NEC–National Electrical Code.

Oil burner–A nonportable device for burning oil in heating appliances such as boilers, furnaces, water heaters, ranges and the like. A burner of this type may be furnished with or without a primary safety control; and it may be a pressure atomizing gun type, a horizontal or vertical rotary type, or a mechanical or natural draft vaporizing type.

P.s.i.g.–Pounds per square inch gauge.

Person–This term shall include individuals, partnerships, corporations or associations.

Process area–That location where flammable or combustible liquids are processed, or stored as a part of current production, and may include working storage.

Processing plant–That portion of a property in which flammable or combustible liquids are mixed, heated, separated or otherwise processed as the principal business.

Refinery–A plant in which flammable or combustible liquids are produced on a commercial scale from crude petroleum, natural gasoline or other hydrocarbon sources.

Safety can–An approved container of not more than 5 gallons capacity, having a spring closing lid and spout cover, and so designed that it will safely relieve internal pressure when subject to fire exposure.

Self-service stations–That portion of property where flammable or combustible liquids used as motor fuels are stored, and subsequently dispensed from fixed equipment into the fuel tanks of motor vehicles by persons other than the service station attendant.

Special mobile equipment–Vehicles not designed or used primarily for the transportation of persons or property and only incidentally operated or moved over a highway including, but not limited to: ditch digging apparatus, well boring apparatus; earth moving and road construction and maintenance machinery, such as asphalt spreaders, bituminous mixers, bucket loaders, snowplows, ditchers, graders, finishing machines, road rollers, scarifiers, earth moving carryalls, scrapers, power shovels and drag lines; and self-propelled cranes and tractors, other than truck tractors. The term does not include house trailers, dump trucks, truck-mounted transit mixers, cranes or shovels; or other vehicles designed for the transportation of persons or property to which machinery has been attached.

Tank (atmospheric)–A storage tank which has been designed to operate at pressures from atmospheric through 1/2 p.s.i.g.

Tank (low pressure)–A storage tank which has been designed to operate at pressures above 1/2 p.s.i.g. but not more than 15 p.s.i.g.

Tank (storage)–A tank which is not connected to the oil burning appliance.

Tank (supply)–A tank connected directly, or by a pump to the oil burning appliance.

Tank vehicle–A vehicle, other than railroad tank cars and boats, whether self propelled or without motive power, used for the transportation of flammable or combustible liquids in cargo tanks having a liquid capacity in excess of 100 gallons mounted on the vehicle or built as an integral part thereof.

Unstable (reactive) liquid–A liquid which in the pure state or as commercially produced or transported will vigorously polymerize, decompose, condense or will become self-reactive under conditions of shock, pressure or temperature.

Vapor pressure–The pressure, measured in pounds per square inch absolute exerted by a volatile liquid as determined by the Reid standard method of test for vapor pressure of petroleum products.

Ventilation–As specified in this subpart, this term pertains to the prevention of fire and explosion. It is considered adequate if it is sufficient to prevent accumulation of significant quantities of vapor-air mixtures in concentration over 1/4 of the lower flammable limit.

Source

The provisions of this § 11.1 adopted October 12, 1971, effective October 23, 1971, 1 Pa.B. 2018; amended June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial pages (76650) and (5101) to (5103).

§ 11.2. Scope of prohibitions.

A person may not have, use, store, sell or keep in any place or building gasoline, naphtha, kerosene, fuel oil, flammable or combustible liquid or other substance of like character under any name designated, in violation of the act or this subpart.

Source

The provisions of this § 11.2 adopted October 12, 1971, effective October 23, 1971, 1 Pa.B. 2018.

§ 11.3. Scope of approval required.

Except as provided in § 13.161(b) (relating to general provisions), a person may not have, use, store, sell or keep in any place or building gasoline, naphtha, kerosene, fuel oil, flammable or combustible liquid or other substance of like character under any name designated in excess of 30 gallons aggregate capacity, nor may a person install, replace or relocate a tank, pump or drawing-off device for use with the liquids, unless written approval, as prescribed by §§ 11.11–11.13 (relating to approval), is obtained from the fire marshal.

Source

The provisions of this § 11.3 adopted October 12, 1971, effective October 23, 1971, 1 Pa.B. 2018; amended June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial page (5103).

Cross References

This section cited in 37 Pa. Code § 11.11 (relating to submission of application).

§ 11.4. Application.

(a) This subpart applies to flammable and combustible liquids having a flash point below 200ºF, but does not apply to liquids and facilities at refineries.

(b) While this subpart does not apply to liquids having a flash point of 200ºF or above, it may apply as a basis for the storage of the liquids, especially with reference to such features as container design, construction, venting and piping.

(c) This subpart applies throughout this Commonwealth, except in Philadelphia County and Allegheny County, and does not supersede additional regulations or requirements not in conflict with this subpart promulgated under authority of law by a political subdivision. If this subpart is in conflict with a regulation or requirement promulgated by a political subdivision, this subpart is applicable.

(d) The portions of this subpart applicable to inside and beneath building storage and use for commercial purposes does not supersede additional regulations or requirements not in conflict with this subpart established by local ordinance.

(e) Under the act, the Department of Labor and Industry has established requirements for the construction of buildings, exclusive of private residences and parcels thereof, except in cities of the First Class, Second Class and Second Class A, which shall supplement this subpart.

(f) This subpart is not applicable to the storage, use and the like of flammable or combustible liquids in fuel tanks, or containers or reservoirs–that is, windshield washer solvent, brake fluid and the like–which are integral components of motor vehicles. Storage in the tanks, containers or reservoirs shall comply with 67 Pa. Code (relating to transportation).

Source

The provisions of this § 11.4 adopted October 12, 1971, effective October 23, 1971, 1 Pa.B. 2018; amended June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial pages (5103) to (5104).

§ 11.5. Retroactivity.

This subpart is not retroactive unless, after investigation, the fire marshal deems it necessary to exercise the powers set forth in § 11.22 (relating to powers of the fire marshal). Approvals previously issued shall be continued in full force and effect if the requirements of this subpart in force at the time of the approval are met, except that this subpart may be applied retroactively whenever the fire marshal, after investigation and in order to protect life and property, deems it necessary to exercise the powers set forth in § 11.22.

Source

The provisions of this § 11.5 adopted October 12, 1971, effective October 23, 1971, 1 Pa.B. 2018.

§ 11.6. Classes of flammable and combustible liquids.

(a) Flammable liquids shall be divided into the following classes:

(1) Class I liquids include those having flash points below 100ºF and may be subdivided as follows:

(i) Class IA includes those having flash points below 73ºF and having a boiling point below 100ºF.

(ii) Class IB includes those having flash points below 73ºF and having a boiling point at or above 100 F.

(iii) Class IC includes those having flash points at or above 73ºF and below 100ºF.

(b) Combustible liquids shall be subdivided as follows:

(1) Class II liquids include those having flash points at or above 100ºF and below 140ºF.

(2) Class III liquids include those having flash points at or above 140ºF and below 200ºF.

(c) The volatility of liquids is increased when heated to temperatures equal to or higher than their flash points. When so heated, class II and class III (combustible liquids) shall be subject to the applicable requirements for class I and class II liquids. This subpart may also be applied to high flash point liquids, which otherwise would be outside of the scope when they are so heated.

Source

The provisions of this § 11.6 adopted October 12, 1971, effective October 23, 1971, 1 Pa.B. 2018; amended June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial pages (5104) to (5105).

§ 11.7. Container construction.

A container shall be made of metal or of approved nonmetallic construction, except for those containers described in paragraphs (1)–(3). Nonmetallic containers used for storage of flammable or combustible liquids shall conspicuously display an embossment (by the manufacturer) of the logogram of a nationally recognized testing laboratory. Drums shall meet the construction requirements of applicable United States Department of Transportation regulations contained in 49 CFR (1979).

(1) Plastic or glass containers having an individual capacity of not more than 1 pint may be used for packaged flammable or combustible liquids.

(2) Plastic or glass containers having an individual capacity of not more than 1 gallon may be used for medicines, beverages, foodstuff and toiletries that are flammable or combustible liquids.

(3) Plastic or glass containers having an individual capacity of not more than 1 gallon may be used for flammable or combustible liquids whose chemical purity would be contaminated by metal containers.

Source

The provisions of this § 11.7 adopted October 12, 1971, effective October 23, 1971, 1 Pa.B. 2018; amended June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial page (5105).

APPROVAL

§ 11.11. Submission of application.

Applications for the written approval required by § 11.3 (relating to scope of approval required) shall be made on a form to be supplied by the fire marshal and shall contain the following information:

(1) Detailed specifications as to the type of equipment to be installed.

(2) Detailed specifications and a sketch or plan as to the location of the equipment or installation described in paragraph (1) shall contain the following items and information:

(i) A sketch in duplicate shall accompany the application for underground installation of individual tanks having a capacity of 5,000 gallons or less.

(ii) A scaled drawing of 20 feet to the inch covering a radius of not less than 150 feet shall be submitted in duplicate for all underground installations of individual tanks having a capacity of more than 5,000 gallons.

(iii) A scaled drawing of 40 feet to the inch covering a radius of not less than 300 feet shall be submitted in duplicate for all aboveground installations.

(iv) Plans and sketches required by this section shall include the location of tanks, drawing-off devices, location of attended self-service consoles and emergency controls, including main power shut-off switch or switches, course of piping, existing tanks, if any, pump house, unloading sidings, streets and roadways, the extent of property lines, position, and description of buildings within the prescribed radii, the slope or grade of the land together with any waterways, streams or other special topographical features.

(3) The application shall be signed by the applicant or an authorized representative.

Source

The provisions of this § 11.11 adopted October 12, 1971, effective October 23, 1971, 1 Pa.B. 2018; amended June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial pages (5105) to (5106).

Cross References

This section cited in 37 Pa. Code § 11.3 (relating to scope of approval required); and 37 Pa. Code § 11.12 (relating to investigation of application).

§ 11.12. Investigation of application.

Upon the filing of an application as provided by § 11.11 (relating to submission of application), the fire marshal shall investigate the matters contained in the application and shall have the right to inspect the equipment to be installed, the proposed location of the installation, and may require additional engineering or laboratory reports or other information as he may deem necessary.

Source

The provisions of this § 11.12 adopted October 12, 1971, effective October 23, 1971, 1 Pa.B. 2018.

Cross References

This section cited in 37 Pa. Code § 11.3 (relating to scope of approval required).

§ 11.13. Approval of application.

If the fire marshal is satisfied that the application for possessing, using, storing, selling and keeping of gasoline, naphtha, kerosene, fuel oil, flammable or combustible liquid, or other substance of like character under any name designated meets the requirements of this subpart, he shall issue his written approval. Action under thereto shall be taken by the applicant within 1 year from the date of the approval.

Source

The provisions of this § 11.13 adopted October 12, 1971, effective October 23, 1971, 1 Pa.B. 2018.

Cross References

This section cited in 37 Pa. Code § 11.3 (relating to scope of approval required).

COMPLIANCE

§ 11.21. Inspection and inventory records.

(a) The fire marshal, or a State police officer acting in behalf of the fire marshal, shall have the right to inspect a place or building in which flammable or combustible liquids are possessed, used, stored or kept in order that he may determine if this subpart is being observed and if an undue hazard from fire or explosion exists on the premises. The written approval required by this subpart may not be deemed to eliminate the right of inspection conferred by this section. The written approval or copy thereof, shall be displayed at the site of the installation.

(b) Accurate daily inventory records shall be maintained and reconciled on flammable and combustible liquid storage tanks for indication of possible leakage from tanks or piping. The preceding 12 months daily inventory records shall be readily available for inspection by the fire marshal and shall include, as a minimum, records showing, by product, daily reconciliation between sales, use, receipts and inventory on hand.

(c) Daily inventory shall be maintained for each tank system at each location by the operator. Daily inventories need not be maintained on those days that an installation is not in operation, but may not exceed 15 days.

(d) Inventory shall be based on the actual daily measurement and recording of tank product and water levels and the daily recording of actual sales, use and receipts. Daily measurements shall be made by gauge, gauge stick or by readout from an automated gauging system. The inventory records shall include daily computation of gain or loss. The mere recording of pump meter readings and product delivery receipt shall not constitute adequate inventory records.

(e) The operator of the location shall be responsible to notify the owner or persons in control of the facility to take action to correct any abnormal loss or gain not explainable by spillage, temperature variations or other causes.

Source

The provisions of this § 11.21 adopted October 12, 1971, effective October 23, 1971, 1 Pa.B. 2018; amended June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial page (5107).

§ 11.22. Powers of the fire marshal.

(a) The fire marshal shall have the power to protect life and property, and he may exercise the power more than once with reference to a given place, building or other facility. If by reason of a change in topography, building construction, relocation of highways or other conditions, the fire marshal determines that more stringent measures shall be taken to protect life or property, he shall have the power to require compliance with the reasonable changes he deems necessary, notwithstanding the fact that the place, building or other facility has been previously approved or was erected, installed or set up prior to April 27, 1927.

(b) The fire marshal shall have power to modify the provisions of this subpart when it may be warranted and

when the modification may be deemed to be equivalent to the requirements affected or be otherwise merited. The fire marshal shall have power to apply the additional requirements with reference to a particular application not specifically covered in this subpart when, in his judgment, it is deemed necessary to minimize any explosion or fire hazard.

(c) The fire marshal shall be notified within 24 hours of a fire that results from the use of flammable or combustible liquid equipment. Notification shall be accomplished by contacting the nearest State police station.

Source

The provisions of this § 11.22 adopted October 12, 1971, effective October 23, 1971, 1 Pa.B. 2018; amended June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial page (5107).

Cross References

This section cited in 37 Pa. Code § 11.5 (relating to retroactivity).

§ 11.23. Fines and other penalties.

An order of removal or remedy shall be made immediately against a person, firm, association or corporation violating, failing or refusing to comply with this subpart. Failure to comply with the order shall be punishable under summary proceedings with a penalty of $50 to $200 plus the costs of prosecution. If there is default of the fine and costs of prosecution, there may be imprisonment of 1 day for each dollar of fine and costs unpaid. However, imprisonment may be imposed for failure to pay all or any part of a fine imposed under this subpart only when the violator fails to show that the nonpayment is caused by indigence or a lack of sufficient funds.

Source

The provisions of this § 11.23 adopted October 12, 1971, effective October 23, 1971, 1 Pa.B. 2018.

CHAPTER 13. STORAGE AND USE

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Authority

The provisions of this Chapter 13 issued under act of April 27, 1927 (P. L. 450, No. 291) (35 P. S. §§ 1181–1194), unless otherwise noted.

Source

The provisions of this Chapter 13 adopted October 12, 1971, 1 Pa.B. 2018, unless otherwise noted.

Notes of Decisions

The act of December 27, 1951 (P. L. 1793, No. 475) (35 P. S. §§ 1321–1339) does not conflict with this chapter. *Northeastern Gas Co., Inc. v. Foster Township Zoning Hearing Board*, 613 A.2d 606, 609 (Pa. Commw. 1992).

OUTSIDE AND ABOVEGROUND STORAGE

§ 13.1. Relative location to property.

(a) *Tables.* The following tables apply to relative location to property lines, public ways and other property:

(1) Aboveground tanks for the storage of flammable or combustible liquids, except those liquids with boilover characteristics and unstable liquids, operating at pressures not in excess of 2½ p.s.i.g. and equipped with emergency venting which do not permit pressures to exceed 2½ p.s.i.g. shall be located in accordance with the following table:

TABLE 1

TYPE OF TANK	PROTECTION	MINIMUM DISTANCE IN FEET FROM PROPERTY LINE WHICH MAY BE BUILT UPON, INCLUDING THE OPPOSITE SIDE OF A PUBLIC WAY	MINIMUM DISTANCE IN FEET FROM NEAREST SIDE OF ANY PUBLIC WAY OR NEAREST BUILDING ON SAME PROPERTY (SEE NOTE)
Floating roof	Protection for exposures	½ times diameter of tank but need not exceed 90 feet	1/6 times diameter of tank but need not exceed 30 feet
	None	Diameter of tank but need not exceed 175 feet	1/6 times diameter of tank but need not exceed 30 feet
Vertical with weak roof to shell seam	Approved foam or inerting system on the tank	½ times diameter of tank but need not exceed 90 feet and shall not be less than 5 feet	1/6 times diameter of tank but need not exceed 30 feet and shall not be less than 5 feet
	Protection for exposures	Diameter of tank but need not exceed 175 feet	1/3 times diameter of tank but need not exceed 60 feet
	None	2 times diameter of tank but need not exceed 350 feet	1/3 times diameter of tank but need not exceed 60 feet
Horizontal and vertical with emergency relief venting to limit pressures to 2½ p.s.i.g.	Approved inerting system on the tank or aproved foam system on vertical tanks	½ times Table 5 but shall not be less than 5 feet	½ times Table 5 but shall not be less than 5 feet
	Protection for exposures	Table 5	Table 5
	None	2 times Table 5	Table 5

Note–No pump or tank shall be placed within the legal right-of-way limits of any state highway or any highway under the jurisdiction of the Pennsylvania Department of Transportation.

(2) Aboveground tanks for the storage of flammable or combustible liquids, except those liquids with boilover characteristics and unstable liquids, operating at pressures exceeding 2½ p.s.i.g. or equipped with emergency venting which will permit pressures to exceed 2½ p.s.i.g. shall be located in accordance with the following table:

TABLE 2

TYPE OF TANK	PROTECTION	MINIMUM DISTANCE IN FEET FROM PROPERTY LINE WHICH MAY BE BUILT UPON, INCLUDING THE OPPOSITE SIDE OF A PUBLIC WAY	MINIMUM DISTANCE IN FEET FROM NEAREST SIDE OF ANY PUBLIC WAY OR NEAREST BUILDING ON SAME PROPERTY (SEE NOTE)
Any Type	Protection for exposures	1½ times Table 5 but shall not be less than 25 feet	1½ times Table 5 but shall not be less than 25 feet
	None	3 times Table 5 but shall not be less than 50 feet	1½ times times Table 5 but shall not be less than 25 feet

Note–No pump or tank shall be placed within the legal right-of-way limits of any state highway or any highway under the jurisdiction of the Pennsylvania Department of Transportation.

(3) Aboveground tanks for the storage of flammable or combustible liquids with boilover characteristics shall be located in accordance with the following table:

TABLE 3

TYPE OF TANK	PROTECTION	MINIMUM DISTANCE IN FEET FROM PROPERTY LINE WHICH MAY BE BUILT UPON, INCLUDING THE OPPOSITE SIDE OF A PUBLIC WAY	MINIMUM DISTANCE IN FEET FROM NEAREST SIDE OF ANY PUBLIC WAY OR NEAREST BUILDING ON SAME PROPERTY (SEE NOTE)
Floating roof	Protection for exposures	Diameter of tank but need not exceed 175 feet	1/3 times diameter of tank but need not exceed 60 feet
	None	2 times diameter of tank but need not exceed 350 feet	1/3 times diameter of tank but need not exceed 60 feet
	Approved foam or inerting system	Diameter of tank but need not exceed 175 feet	1/3 times diameter of tank but need not exceed 60
Fixed Roof	Protection for exposures	2 times diameter of tank but need not exceed 350 feet	2/3 times diameter of tank but need not exceed 120 feet
	None	4 times diameter of tank but need not exceed 350 feet	2/3 times diameter of tank but need not exceed 120 feet

Note–No pump or tank shall be placed within the legal right-of-way limits of any state highway or any highway under the jurisdiction of the Pennsylvania Department of Transportation.

(4) Aboveground tanks for the storage of unstable liquids shall be located in accordance with the following table:

TABLE 4

TYPE OF TANK	PROTECTION	MINIMUM DISTANCE IN FEET FROM PROPERTY LINE WHICH MAY BE BUILT UPON, INCLUDING THE OPPOSITE SIDE OF A PUBLIC WAY	MINIMUM DISTANCE IN FEET FROM NEAREST SIDE OF ANY PUBLIC WAY OR NEAREST BUILDING ON SAME PROPERTY (SEE NOTE)
Horizontal and vertical tanks with emergency relief venting to permit pressure not in excess of 2½ p.s.i.g.	Tank protected with any one of the following aproved water spray, approved inerting, approved insulation and refrigeration, approved barricade	Table 5 but not less than 25 feet	Not less than 25 feet
	Protection for exposures	2½ times Table 5 but not be less than 5 feet	Not less than 50 feet
	None	5 times Table 5 but not less than 100 feet	Not less than 100 feet
Horizontal and vertical tanks with emergency relief venting to permit pressure over 2½ p.s.i.g.	Tank protected with any one of the following: approved water spray, approved inerting, approved insultation and refrigeration, approved barricade	2 times Table 5 but not less than 50 feet	Not less than 50 feet
	Protection for exposures	4 times Table 5 but not be less than 100 feet	Not less than 100 feet
	None	8 times Table 5 but not less than 150 feet	Not less than 150 feet

Note–No pump or tank shall be placed within the legal right-of-way limits of any state highway or any highway under the jurisdiction of the Pennsylvania Department of Transportation.

(5) The minimum distance used in Tables 1, 2, and 4 is set forth in the following table:

TABLE 5

CAPACITY OF TANK (IN GALLONS)	MINIMUM DISTANCE IN FEET FROM PROPERTY LINE WHICH MAY BE BUILT UPON, INCLUDING THE OPPOSITE SIDE OF A PUBLIC WAY	MINIMUM DISTANCE IN FEET FROM NEAREST SIDE OF ANY PUBLIC WAY OR NEAREST BUILDING ON SAME PROPERTY (SEE NOTE)
275 or less	5	5
276 to 750	10	5
751 to 12,000	15	5
12,001 to 30,000	20	5
30,001 to 50,000	30	10
50,001 to 100,000	50	15
100,001 to 500,000	80	25
500,001 to 1,000,000	100	35
1,000,001 to 2,000,000	135	45
2,000,001 to 3,000,000	165	55
3,000,001 or more	175	60

Note–No pump or tank shall be placed within the legal right-of-way limits of any state highway or any highway under the jurisdiction of the Pennsylvania Department of Transportation.

(b) *Exposure of property.* If end failure of horizontal tanks may expose property, the tank shall be placed with the longitudinal axis parallel to the more severe exposure.

(c) *Common boundaries of diversely-owned property.* If two tank locations of diverse ownership have a common boundary, the fire marshal may, with written consent of the owners of the two properties, substitute the distances set forth in § 13.2 (relating to spacing between aboveground tanks), for the minimum distances set forth in this section.

(d) *Consideration for special conditions.* These provisions may be altered in particular installations so as to be less restrictive or more restrictive at the discretion of the fire marshal after consideration of special features such as, but not restricted to, topographical conditions, nature of occupancy, proximity to buildings on adjoining property, height and character of construction of such buildings, capacity and construction of proposed tanks and character of liquids to be stored, degree of private fire protection to be provided, and facilities of the fire department to cope with flammable or combustible liquid fires.

(e) *Application of this section.* The provisions set forth in Tables 1–5 apply to distances between tanks and buildings on the property where installation is made.

(f) *Protection for exposures.* When such term is used in Tables 1–5, protection for exposures shall mean fire protection for structures on property adjacent to tanks. Structures located within the jurisdiction of any public fire department or within or adjacent to plants having private fire brigades shall be considered as having adequate protection for exposures.

(g) *Requirements for fire prevention.* If the required distance between tanks and buildings on the property where installation is made is greater than ten feet for tanks operated at pressures not in excess of 2½ p.s.i.g. and used for storage of liquids other than those with boilover or unstable characteristics, such tanks may be closer to buildings than as set forth in Tables 1 and 5 but not less than 10 feet, if such buildings are of noncombustible construction, including resistive roof, with no openings on the side or sides facing the tanks. In the alternative, if openings would be present, wire glass in metal frame, fire shutters, or fire doors shall be acceptable on such openings.

(h) Skid tanks, similar portable equipment and drums are prohibited except when placed on farm and other isolated property for use in connection with farm equipment; or for private purposes only; or when use of such tanks or drums will be of purely temporary duration in connection with contract work such as road construction, strip mining and other transient operations where conventional type equipment would not be reasonably feasible or practicable; however, individual tanks shall not exceed 1,000 gallons capacity for storage of class I liquids, nor be in excess of 2,000 gallons capacity for storage of class II and class III liquids. Individual drums shall not exceed 60 gallons capacity. Individual tanks, similar portable equipment or drums shall not be interconnected and shall be kept closed when not in use.

(1) Skid tanks, similar portable equipment and drums must be located at least 40 feet from any building. Any vehicle, container or equipment being filled directly from a tank or drum must be at least 40 feet from any building. Pumps must be of an approved type and permanently attached. Dispensing devices used in connection with drums must be self-closing, of approved type and permanently attached. Dispensing devices requiring pressure on the tank or drum are prohibited.

(2) Skid tanks, similar portable equipment and drums shall be conspicuously marked in letters not less than 3 inches high with the name of the product which they contain and the words “INFLAMMABLE–KEEP 40 FEET FROM BUILDINGS.” This section does not pertain to drums stored under § 13.46 (relating to storage outside of buildings).

(i) Aboveground tanks shall not be located within 200 feet of any underground mine opening.

Source

The provisions of this § 13.1 amended June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial pages (63471) to (63473), and (5111) to (5114).

Cross References

This section cited in 37 Pa. Code § 13.46 (relating to storage outside of buildings); 37 Pa. Code § 13.105 (relating to loading and unloading); 37 Pa. Code § 13.111 (relating to storage and handling); 37 Pa. Code § 13.141 (relating to scope and application); 37 Pa. Code § 13.151 (relating to scope and application); and 37 Pa. Code § 13.161 (relating to general provisions).

§ 13.2. Spacing between aboveground tanks.

(a) The distance from shell to shell between flammable or combustible liquid storage tanks shall not be less than three feet.

(b) Except as provided in subsections (c) and (d), the distance from shell to shell between adjacent tanks shall not be less than 1/6 the sum of their diameters, except when the diameter of one tank is less than 1/2 the diameter of the adjacent tank, the distance between the two tanks shall not be less than 1/2 the diameter of the smaller tank.

(c) If a producing area for tanks storing crude petroleum has a capacity not in excess of 126,000 gallons (3,000 barrels), the distance between the tanks shall not be less than 3 feet; for tank capacities in excess of 126,000 gallons (3,000 barrels), the distance shall not be less than the diameter of the smaller tank.

(d) The distance between tanks storing unstable liquids shall not be less than 1/2 the sum of their diameters.

(e) If tanks are compacted in three or more rows, or in an irregular pattern, greater spacing or other means shall be provided at the discretion of the fire marshal so that inside tanks are accessible for fire fighting purposes.

(f) The minimum separation between a liquefied petroleum gas container and a flammable or combustible liquid storage tank shall be 20 feet. Suitable means shall be taken to prevent the accumulation of flammable or combustible liquids under adjacent liquefied petroleum gas containers, such as diking, diversion curbs, or grading. If flammable or combustible liquid storage tanks are diked, the liquefied petroleum gas containers shall be outside of the diked area wall. The foregoing provisions shall not apply when liquefied petroleum gas containers with capacities of 125 gallons or less are installed adjacent to fuel oil supply tanks with capacities of 660 gallons or less. Liquefied petroleum gas installations are under the jurisdiction of the Department of Labor and Industry.

Source

The provisions of this § 13.2 amended June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial pages (5114) to (5115).

Cross References

This section cited in 37 Pa. Code § 13.1 (relating to relative location to property); 37 Pa. Code § 13.111 (relating to storage and handling); 37 Pa. Code § 13.141 (relating to scope and application); 37 Pa. Code § 13.151 (relating to scope and application); and 37 Pa. Code § 13.161 (relating to general provisions).

§ 13.3. Foundations and supports.

Tanks shall be supported so as to prevent excessive concentration of loads on the supporting portion of the shell. Tank foundations shall be designed to minimize the possibility of uneven settling of the tank and to minimize corrosion in any part of the tank resting on the foundation. Tanks shall rest directly on the ground or on suitable foundations or supports of concrete, masonry, piling, or steel. Exposed steel supports shall be protected by fire resistive materials to provide a fire resistance rating of not less than 2 hours, with the exception of tanks with capacities of 660 gallons or less, installed on farm or other isolated property and only used for private purposes. No combustible piling shall be permitted above ground level.

Source

The provisions of this § 13.3 amended June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial pages (5115) to (5116).

Cross References

This section cited in 37 Pa. Code § 13.111 (relating to storage and handling); 37 Pa. Code § 13.141 (relating to scope and application); 37 Pa. Code § 13.151 (relating to scope and application); and 37 Pa. Code § 13.161 (relating to general provisions).

§ 13.4. Anchorage.

If a tank is located in an area that may be subjected to flooding, installation shall be in accordance with §§ 13.211–13.217 (relating to protection of tanks in flood areas).

Cross References

This section cited in 37 Pa. Code § 13.111 (relating to storage and handling); 37 Pa. Code § 13.141 (relating to scope and application); 37 Pa. Code § 13.151 (relating to scope and application); and 37 Pa. Code § 13.161 (relating to general provisions).

§ 13.5. Area beneath tanks.

No structure, other than supports, shall be erected or placed beneath any aboveground tank, nor shall any combustible material, drum, or barrel be stored or kept under any such tank.

Cross References

This section cited in 37 Pa. Code § 13.111 (relating to storage and handling); 37 Pa. Code § 13.141 (relating to scope and application); 37 Pa. Code § 13.151 (relating to scope and application); and 37 Pa. Code § 13.161 (relating to general provisions).

§ 13.6. Dikes, walls and drainage.

(a) *General.* The area surrounding a tank or a group of tanks shall be provided with drainage or shall be diked to prevent accidental discharge of liquid from endangering adjoining property or reaching waterways, except that in particular installations these provisions may be waived or altered at the discretion of the fire marshal when the tanks under consideration do not constitute a hazard to adjoining property.

(b) *Drainage.* If protection of adjoining property or waterways is by means of a natural or manmade drainage system, such systems shall comply with the following:

(1) A slope of not less than 1.0% away from the tank toward the drainage system shall be provided.

(2) The drainage system shall terminate in vacant land or in an impounding basin having a capacity not smaller than that of the largest tank served. This termination area and the route of the drainage system shall be located so that if the flammable or combustible liquids in the drainage system are ignited, the fire will not expose tanks or adjoining property.

(3) The drainage system, including automatic drainage pumps, shall not discharge to adjoining property, natural water courses, public sewers, or public drains, nor discharge in any manner that would constitute a hazard.

(c) *Diked areas.* If protection of adjoining property or waterways is accomplished by retaining the liquid around the tank by means of a diked area, such diked area shall comply with the following requirements:

(1) Except as set forth in paragraph (2), the diked area shall be designed to contain the volume of liquid that can be released from the largest tank.

(2) For tanks with fixed roofs containing crude petroleum with boilover characteristics, the diked area shall be designed to contain the volume of liquid that can be released from all tanks served by the enclosure.

(3) Walls of a diked area shall be of earth, steel, concrete, or solid masonry designed to be liquid tight and to withstand a full hydrostatic head. Earthen walls 3 feet or more in height shall have a flat section at the top not less than 2 feet wide. The slope of an earthen wall shall be consistent with the angle of repose of the material of which the wall is constructed. Dike walls shall be restricted to a maximum height of 6 feet above interior grade. The use of building walls as part of dike walls is prohibited.

(4) Provision shall be made for draining water from diked areas. Drainage shall have a uniform slope of not less than 1.0% away from tanks toward a sump, drainbox, or other safe means of disposal located at the greatest practicable distance from the tank, and shall be accessible to control under fire conditions. Such drains shall be kept closed except when in use and shall be designed so that they do not permit flammable or combustible liquids to enter natural water courses, sewers, or drains if their presence would constitute a hazard. Pumps or other means used in providing drainage from diked areas shall be manually controlled only.

(5) No loose combustible material, drum, or barrel shall be permitted within the diked area.

(6) In densely populated areas a fence which will enclose the tank or equipment may be required where public access to the tank is not otherwise restricted.

(d) *Particular installations.* These provisions may be altered in particular installations at the discretion of the fire marshal after consideration of special features such as topographical conditions, nature of occupancy and proximity to buildings, height and character of construction of such buildings, capacity and construction of proposed tanks and character of liquids to be stored, degree of private fire protection to be provided, and facilities of fire departments to cope with flammable or combustible liquid fires.

Source

The provisions of this § 13.6 amended June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial pages (5116) to (5118).

Cross References

This section cited in 37 Pa. Code § 13.8 (relating to vents); 37 Pa. Code § 13.111 (relating to storage and handling); 37 Pa. Code § 13.141 (relating to scope and application); 37 Pa. Code § 13.151 (relating to scope and application); and 37 Pa. Code § 13.161 (relating to general provisions).

§ 13.7. Design, construction and use of tanks.

(a) *General.* Tanks shall be designed and constructed to safely withstand the service to which they are subjected. Use of a tank vehicle or railroad tank car, not meeting the requirements of this section, for purposes other than its designed use such as a storage or supply tank, is prohibited.

(b) *Materials and fabrication.* The materials and fabrication of tanks shall conform to the following:

(1) Tanks shall be built of steel unless the character of liquids stored requires some other material. Tanks built of materials other than steel shall be designed to specifications embodying principles recognized as good engineering design for the material used. Unlined concrete tanks may be used for storing flammable or combustible liquids having a gravity of 40ºAPI or heavier. Concrete tanks with special lining may be used for other services if the design is in accordance with sound engineering practice. Tanks may have combustible or noncombustible linings. Special engineering considerations are required if the specific gravity of the liquid to be stored exceeds that of water or if the tanks are designed to contain flammable or combustible liquids at a liquid temperature below 0ºF.

(2) Tanks may be of any shape or type consistent with sound engineering design. Metal tanks shall be welded, riveted and caulked, brazed, or bolted, or constructed by use of a combination of these methods. Filler metal used in brazing shall be nonferrous metal or an alloy having a melting point above 1000ºF. and below that of the metal joined.

(c) *Atmospheric tanks.* The following contain the minimum requirements for construction of steel atmospheric tanks:

(1) Underwriters' Laboratories, Incorporated, Subject No. 142–1981, *Standard for Steel Aboveground Tanks for Flammable and Combustible Liquids.*

(2) American Petroleum Institute Standard No. 650–1980, *Welded Steel Tanks for Oil Storage.*

(3) American Petroleum Institute Standards No. 12B–1977, *Specification for Bolted Tanks for Storage of Production Liquids;* No. 12MD–1982, *Specification for Field Welded Tanks for Storage of Production Liquids;* or No. 12F–1982, *Specification for Shop Welded Tanks for Storage of Production Liquids.* Tanks built in accordance with these standards shall be used only as production tanks for storage of crude petroleum in oil producing areas.

(4) Skid tanks and similar portable equipment of 61 to 660 gallons capacity shall be of single compartment design and constructed in accordance with accepted engineering practice. Joints shall be welded.

(i) Tank heads over 6 feet in diameter shall be dished, stayed, braced or reinforced.

(ii) Minimum thickness shall be in accordance with the following:

CAPACITY GALLONS	MINIMUM THICKNESS OF STEEL MFRS. GAUGE NO.
61-275	14
276-550	12
551-660	10

(iii) A fill opening shall be provided and shall be equipped with a closure design, so that it may be locked. The fill opening shall be separate from the vent opening.

(iv) Tanks not mounted on runners or resting on metal legs shall be mounted in a stable position on noncombustible blocks approximately 6 inches in height, so as to protect the bottom of the tank from corrosion.

(5) Skid tanks and similar portable equipment of 661 to 2,000 gallons capacity shall be constructed in accordance with the standards contained in the publications referenced in subsection 5(c)(1) and (2).

(d) *Low pressure tanks.* The following contain the minimum requirements for construction of steel low pressure tanks:

(1) American Petroleum Institute Standard No. 620–1982, *Recommended Rules for the Design and Construction of Large, Welded Low-Pressure Storage Tanks.*

(2) The normal operating pressure of the tank shall not exceed the design pressure of the tank.

(3) Atmospheric tanks built according to Underwriters' Laboratories, Incorporated, Subject No. 142–1981 may be used for operating pressures not exceeding one p.s.i.g. and shall be limited to 2½ p.s.i.g. under emergency venting conditions.

Source

The provisions of this § 13.7 amended June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial pages (5118) to (5119).

Cross References

This section cited in 37 Pa. Code § 13.111 (relating to storage and handling); 37 Pa. Code § 13.141 (relating to scope and

application); 37 Pa. Code § 13.151 (relating to scope and application); and 37 Pa. Code § 13.161 (relating to general provisions).

§ 13.8. Vents.

(a) *Normal venting.* The normal venting requirements for construction and use of tanks shall conform to the following:

(1) Atmospheric tanks shall be adequately vented to prevent, as a result of filling or emptying and atmospheric temperature changes, development of pressure or vacuum sufficient to distort the roof of a cone roof tank or pressure exceeding the design pressure in the case of other atmospheric tanks.

(2) Low pressure tanks shall be adequately vented to prevent development of pressure or vacuum, as a result of filling or emptying and atmospheric temperature changes, from exceeding the design pressure of the tank. Protection shall also be provided to prevent overpressure from any pump discharging into the tank where the pump discharge pressure may exceed the design pressure of the tank.

(3) If a tank has more than one fill or withdrawal connection and simultaneous filling or withdrawal can be made, the vent size shall be based on the maximum anticipated simultaneous flow.

(4) Unless the vent is designed to limit the internal pressure to 2½ p.s.i.g. or less, the outlet of vents and vent drains shall be arranged to discharge in such a manner as to prevent localized overheating of any part of the tank in the event vapors from such vents are ignited.

(5) Tanks storing class IA liquids shall be equipped with venting devices which shall be normally closed except when venting under pressure or vacuum conditions. Tanks storing class IB and class IC liquids shall be equipped with venting devices which shall be normally closed except when venting under pressure or vacuum conditions, or with approved flame arresters. This paragraph shall not apply to tanks with capacities of 3,000 barrels or less containing crude petroleum in crude producing areas and outside aboveground atmospheric tanks with capacities under 1,000 gallons containing other than class IA liquids which may have open vents.

(6) Flame arresters or venting devices required in paragraph (5) may be omitted for class IB and class IC liquids if conditions are such that their use may, in case of obstruction, result in tank damage. Liquid properties justifying the omission of such devices include, but are not limited to, condensation, corrosiveness, crystallization, polymerization, freezing, or plugging. When any of these conditions exist, consideration may be given to heating, use of devices employing special materials of construction, the use of liquid seals, or inerting; for further information, see *Standard No. 69–1978, Explosion Prevention Systems.*

(7) Normal vents shall be sized in accordance with either the American Petroleum Institute, *Standard No. 2000–1982, Venting Atmospheric and Low-Pressure Storage Tanks*, or other accepted standard, or shall be at least as large as the filling or withdrawal connection, whichever is larger, but shall not in any case be less than the requirements set forth in the following table:

CAPACITY OF TANK (IN GALLONS)	DIAMETER OF VENT FITTING IRON PIPE SIZE (IN INCHES)
500 or less	1¼
501 to 3,000	1½
3,001 to 10,000	2
10,001 to 20,000	2½
20,001 to 35,000	3

(8) Skid tanks and similar portable equipment shall be provided with a free opening vent of the following nominal pipe size, to relieve vacuum or pressure which may develop in normal operation or from fire exposure:

TANK SIZE	VENT SIZE (IN INCHES)
0 - 275	1½
276 - 660	2
661 - 900	2½
901 - 1,000	3

(i) Vents shall be arranged to discharge in such a way as to prevent localized or overheating of, or flame impingement on, any part of the tank in the event vapors from such vents are ignited.

(ii) Drums equipped with dispensing devices must be provided with pressure and vacuum relief vents with flame arresters. These vents are to be in addition to any vent which may be an integral part of the dispensing device being used in connection with the drum.

(9) For tanks in excess of 1,100 gallons capacity, emergency relief venting for fire exposure shall be as provided under subsection (b).

(b) *Emergency relief venting for fire exposure.* Every aboveground storage tank shall have some form of construction or device that will relieve excessive internal pressure caused by exposure fires, and such construction or device shall conform to the following:

(1) In a vertical tank, the construction may take the form of a floating roof, lifter roof, a weak roof-to-shell seam, or other approved pressure relieving construction. The weak roof-to-shell seam shall be constructed to fail preferential to any other seam. Where entire dependence for such additional relief is placed upon some device other than a weak roof seam or join, the total venting capacity of both normal and emergency vents shall be enough to prevent rupture of the shell or bottom of the tank if verical, or of the shell or heads, if horizontal. Such device may be a self-closing manhole cover, or one using long bolts that permit the cover to lift under internal pressure.

(2) If emergency venting is not provided in accordance with paragraph (1), the total capacity of both normal and emergency venting devices shall be not less than that derived from the following table, except as provided in paragraphs (4) and (5):

Wetted Area Versus Cubic Feet Free Air per Hour
at 14.7 p.s.i.g. and 60ºF.

Square Feet	CFH	Square Feet	CFH	Square Feet	CFH
20	21,100	160	168,000	900	493,000
30	31,600	180	190,000	1,000	524,000
40	42,100	200	211,000	1,200	557,000
50	52,700	250	239,000	1,400	587,000
60	63,200	300	265,000	1,600	614,000
70	73,700	350	288,000	1,800	639,000
80	84,200	400	312,000	2,000	662,000
90	94,800	500	354,000	2,400	704,000
100	105,000	600	392,000	2,800	742,000
120	126,000	700	428,000	and over	
140	147,000	800	462,000		

(3) The wetted area of the tank, when such term is used in paragraph (2), shall be calculated on the basis of 55% of the total exposed area of a sphere or spheroid, 75% of the total exposed area of a horizontal tank, and the

first 30 feet abovegrade of the exposed shell area of a vertical tank. Approximate wetted areas for horizontal tanks may be found in the following table:

Approximate Wetted Areas for Horizontal Tanks
(Wetted Area Equals 75% Total Area)

Tank Diameter (feet)	3	4	5	6	7	8	9	10	11	12
Tank Length (feet)	Approximate Wetted Area Of Tanks With Flat Heads									
3	32									
4	39	55								
5	46	65	88							
6	53	74	100	128						
7	60	84	112	142	173					
8	67	93	124	156	190	226				
9	74	102	136	170	206	245	286			
10	82	112	147	184	223	264	308	353		
11	88	121	159	198	239	283	329	377	428	
12	95	131	171	213	256	301	350	400	454	509
13	102	140	183	227	272	320	371	424	480	537
14	109	150	194	241	289	339	393	447	506	565
15	116	159	206	255	305	358	414	471	532	594
16	123	169	218	269	322	377	435	495	558	622
17	130	178	230	283	338	395	456	518	584	650
18	137	188	242	298	355	414	477	542	610	678
19		197	253	312	371	433	499	565	636	707
20		206	265	326	388	452	520	589	662	735
21		216	277	340	404	471	541	612	688	763
22		225	289	354	421	490	562	636	714	792
23		235	300	368	437	508	584	659	740	820
24		244	312	383	454	527	605	683	765	848
25			324	397	470	546	626	706	791	876
26			336	411	487	565	647	730	817	905
27			347	425	503	584	668	754	843	933
28			359	440	520	603	690	777	869	961
29			371	454	536	621	711	801	895	989
30			383	468	553	640	732	824	921	1018
31			395	482	569	659	753	848	947	1046
32				496	586	678	775	871	973	1074
33				510	602	697	796	895	999	1103
34				524	619	715	817	918	1025	1131
35				539	635	734	838	942	1051	1159
36				553	652	753	860	966	1077	1187

Approximate Wetted Areas for Horizontal Tanks

(Wetted Area Equals 75% Total Area)

Tank Diameter (feet)	3	4	5	6	7	8	9	10	11	12
Tank Length (feet)				Approximate Wetted Area Of Tanks With Flat Heads						
37				567	668	772	881	989	1103	1216
38					685	791	902	1013	1129	1244
39					701	810	923	1036	1155	1272
40					718	828	944	1060	1181	1301
41					734	847	966	1083	1207	1329
42					751	866	987	1107	1233	1357
43					767	885	1008	1130	1259	1385
44						904	1029	1154	1284	1414
45						923	1051	1178	1310	1442
46						941	1072	1201	1336	1470
47						960	1093	1225	1362	1498
48						979	1114	1248	1388	1527
49						998	1135	1272	1414	1555
50							1157	1295	1440	1583
51							1178	1319	1466	1612
52							1199	1342	1492	1640
53							1220	1366	1518	1668
54							1246	1389	1544	1696
55							1263	1413	1570	1725
56								1437	1593	1753
57								1460	1622	1781
58								1484	1648	1809
59								1507	1674	1839
60								1531	1700	1866
61									1726	1894
62									1752	1923
63									1778	1951
64									1803	1979
65									1829	2007
66									1855	2036
67										2064
68										2092
69										2120
70										2149
71										2177
72										2205

(4) The total emergency relief venting capacity for any specific liquid may be determined by the following formula:

Cubic feet of free air per hour =

$$V\ 1337/L\sqrt{M}$$

V = cubic feet of free air per hour from the table of paragraph (2).

L = latent heat of vaporization of specific liquid in Btu per pound.

M = molecular weight of specific liquid.

(5) The required air flow rate, as set forth in paragraphs (2) and (3), may be multiplied by the following appropriate factor set forth when protection is provided as indicated; only one factor may be used for any one tank:

(i) Factor .5 for drainage in accordance with the drainage provisions of § 13.6 (relating to dikes, walls and drainage) for tanks over 200 square feet of wetted area.

(ii) Factor .3 for approved water spray.

(iii) Factor .3 for approved insulation.

(iv) Factor .15 for approved water spray with approved insulation.

(6) Venting devices shall be certified by the manufacturer as to actual rated flow capacity in cubic feet of free air per hour, specifying the pressure in p.s.i.g. at which the flow capacity was determined. The stamping of such information on the devices by the manufacturer shall be acceptable as certification for this purpose.

(7) The outlet of all vents and vent drains on tanks equipped with emergency venting to permit pressures exceeding 2½ p.s.i.g. shall be arranged to discharge in such a way as to prevent localized overheating of any part of the tank in the event vapors from such vents are ignited.

(c) *Vent piping for aboveground tanks.* Vent piping for aboveground tanks shall conform to the following:

(1) Vent piping shall be constructed under §§ 13.51–13.58 (relating to piping, valves and fittings). Where vent piping for tanks storing class I liquids is adjacent to buildings or public ways, the vent piping shall be located so that the vapors are released at a safe point away from buildings and not less than 12 feet above the adjacent ground level. In order to aid their dispersion, vapors shall be discharged upward so that flammable vapors will not be trapped by eaves or other obstructions and shall be at least 5 feet from building openings. Vent outlets for all classes of flammable and combustible liquids shall be above normal snow accumulation on top of tanks.

(2) When tank vent piping is manifolded, pipe sizes shall be able to discharge, within the pressure limitations of the system, the vapors they may be required to handle when manifolded tanks are subject to the same fire exposure. The manifolding of tank vent piping shall be avoided except if required for special purposes such as vapor recovery, vapor conservation or air pollution control.

(3) Vent piping for tanks storing class I liquids shall not be manifolded with vent piping for tanks storing class II or class III liquids unless positive means are provided to prevent the vapors from class I liquids from entering tanks storing class II or class III liquids to prevent contamination and possible change in classification of the less volatile liquid.

Authority

The provisions of this § 13.8 issued under act of April 27, 1927 (P. L. 450, No. 291) (35 P. S. §§ 1181–1194).

Source

The provisions of this § 13.8 amended through June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial pages (5119) to (5122), (63474) to (63475), and (63948).

Cross References

This section cited in 37 Pa. Code § 13.25 (relating to vents for underground tanks); 37 Pa. Code § 13.111 (relating to storage

and handling); 37 Pa. Code § 13.141 (relating to scope and application); 37 Pa. Code § 13.151 (relating to scope and application); and 37 Pa. Code § 13.161 (relating to general provisions).

§ 13.9. Tank valves.

Each connection to an aboveground tank storing flammable or combustible liquids, located below normal liquid level, shall be provided with an internal or external control valve located as close as practicable to the shell of the tank. Except for flammable or combustible liquids whose chemical characteristics are incompatible with steel, such valves, when external, and their connections to the tank shall be of steel. When materials other than steel are necessary, they shall be suitable for the pressures, structural stresses and temperatures involved, including fire exposures.

Cross References

This section cited in 37 Pa. Code § 13.111 (relating to storage and handling); 37 Pa. Code § 13.141 (relating to scope and application); 37 Pa. Code § 13.151 (relating to scope and application); and 37 Pa. Code § 13.161 (relating to general provisions).

§ 13.10. Grounding.

Each tank or system shall be electrically grounded in an approved manner.

Cross References

This section cited in 37 Pa. Code § 13.111 (relating to storage and handling); 37 Pa. Code § 13.141 (relating to scope and application); 37 Pa. Code § 13.151 (relating to scope and application); and 37 Pa. Code § 13.161 (relating to general provisions).

§ 13.11. Testing.

All tanks shall be tested for strength and tightness before they are placed in service in accordance with the applicable code or standard under which they were built. This test shall be made at operating pressure with air, inert gas or water prior to placing the tank in service.

Cross References

This section cited in 37 Pa. Code § 13.111 (relating to storage and handling); 37 Pa. Code § 13.141 (relating to scope and application); 37 Pa. Code § 13.151 (relating to scope and application); and 37 Pa. Code § 13.161 (relating to general provisions).

§ 13.12. Prevention of overfilling of tanks.

Tanks receiving transfer of flammable or combustible liquid from mainline pipelines or marine vessels shall be:

(1) Gauged at frequent intervals while receiving transfer of product, and communications maintained with mainline pipeline or marine personnel so that flow can be promptly shut down or diverted;

(2) Equipped with an independent high level alarm located where personnel are on duty during the transfer and can promptly arrange for flow stoppage or diversion; or

(3) Equipped with an independent high level alarm system that will automatically shut down or divert flow.

Source

The provisions of this § 13.12 adopted June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131.

UNDERGROUND STORAGE

§ 13.21. Location.

A flammable or combustible liquid storage tank may be located outside underground, if such installation meets §§ 13.21–13.26 (relating to underground storage). The tank shall be so located with respect to existing building foundations and supports that the loads carried by the supports are not transmitted to the tank. The distances from any part of a tank storing class I liquids to the nearest wall of any basement, pit or cellar shall be not less than 1 foot, and from the line of any adjoining property not less than 3 feet. The distance from any part of a tank storing class II or class III liquids to the nearest wall of any basement, pit or cellar, and from the line of any adjoining property shall be not less than 1 foot. When tank excavations are lower than wall or column footings, the edge of the ditch shall be outside a slope of one horizontal to one vertical from the edge of such footing. No tank shall be placed within the legal right-of-way limits of any highway, or any highway under the jurisdiction of DOT, nor within 200 feet of an underground mine opening.

Source

The provisions of this § 13.21 amended June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial pages (5125) to (5126).

Cross References

This section cited in 37 Pa. Code § 13.141 (relating to scope and application); 37 Pa. Code § 13.151 (relating to scope and application); and 37 Pa. Code § 13.161 (relating to general provisions).

§ 13.22. Depth and cover.

Excavation for underground storage tanks shall be made with due care to avoid undermining of foundations of existing structures. Underground tanks shall be set on a firm foundation, at least 2 feet apart, and surrounded with noncorrosive, uniform, inert materials such as soft earth or sand well tamped in place. Tanks shall be covered with a minimum of 2 feet of earth, or shall be covered with not less than 1 foot of earth on top of which shall be placed a slab of reinforced concrete not less than 4 inches thick. When underground tanks are or are likely to be subjected to traffic, they shall be protected against damage from vehicles passing over them by at least 3 feet of earth cover, or 18 inches of well tamped earth, plus 6 inches of reinforced concrete or 8 inches of asphaltic concrete. When asphaltic or reinforced concrete paving is used as part of the protection it shall extend at least 1 foot horizontally beyond the outline of the tank in all directions.

Cross References

This section cited in 37 Pa. Code § 13.21 (relating to location); 37 Pa. Code § 13.141 (relating to scope and application); 37 Pa. Code § 13.151 (relating to scope and application); and 37 Pa. Code § 13.161 (relating to general provisions).

§ 13.23. Anchorage.

If a tank is located in an area that may be subjected to flooding, installation shall be in accordance with §§ 13.211–13.217 (relating to protection of tanks in flood areas).

Cross References

This section cited in 37 Pa. Code § 13.21 (relating to location); 37 Pa. Code § 13.141 (relating to scope and application); 37 Pa. Code § 13.151 (relating to scope and application); and 37 Pa. Code § 13.161 (relating to general provisions).

§ 13.24. Design, construction and protection of tanks.

(a) *General.* Underground tanks shall be designed and constructed to safely withstand the service to which they are subjected. Tanks shall not contain petroleum products containing mixtures of a non-petroleum nature without evidence of compatibility. This shall include ethanol or methanol blends.

(b) *Materials.* Tanks shall be built of steel except as provided in this subsection. Tanks may be built of materials other than steel for installation underground or if required by the properties of the liquid stored. Tanks built of materials other than steel shall be designed to specifications embodying principles recognized as good engineering design for the material used. Unlined concrete tanks may be used for storing flammable or combustible liquids having a gravity of 40 API or heavier. Concrete tanks with special lining may be used for other services if the design is in accordance with sound engineering practice. Tanks may have combustible or noncombustible linings. Special engineering consideration is required if the specific gravity of the liquid to be stored exceeds that of water or if the tanks are designed to contain flammable or combustible liquids at a liquid temperature below 0ºF.

(c) *Fabrication.* Underground tank construction shall be in accordance with the following publications:

(1) Underwriters' Laboratories, Incorporated, Standard No. 58–1976, *Specifications for Underground Tanks for Flammable and Combustible Liquids,* sets forth the minimum requirements for construction of steel underground tanks.

(2) Underwriters' Laboratories, Incorporated, Standard No. 1316–83T, *Specifications for Glass-Fiber Reinforced Plastic Underground Storage Tanks for Petroleum Products,* sets forth the minimum requirements for construction of nonmetallic underground tanks.

(d) *Protection against corrosion.* Tanks shall be protected by:

(1) Use of protective coatings or wrappings;

(2) Cathodic protection; or

(3) Corrosion resistant materials of construction such as special alloys, fiber glass reinforced plastic or fiber glass reinforced plastic coatings, or equivalent approved systems.

Source

The provisions of this § 13.24 amended June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial page (63476).

Cross References

This section cited in 37 Pa. Code § 13.21 (relating to location); 37 Pa. Code § 13.141 (relating to scope and application); 37 Pa. Code § 13.151 (relating to scope and application); and 37 Pa. Code § 13.161 (relating to general provisions).

§ 13.24a. Tank openings and vents for underground tanks.

(a) Connections for all tank openings shall be liquid tight.

(b) Openings for manual gaging, if independent of the fill pipe, shall be provided with a liquid-tight cap or cover. Covers shall be kept closed when not gaging. If inside a building, each such opening shall be protected against liquid overflow and possible vapor release by means of a spring loaded check valve or other approved device.

(c) Fill and discharge lines shall enter tanks only through the top. Fill lines shall be sloped toward the tank.

(d) For class IB and class IC liquids other than crude oils, gasolines, and asphalts, the fill pipe shall be so designed and installed as to minimize the possibility of generating static electricity by terminating within six inches of the bottom of the tank.

(e) Filling and emptying and vapor recovery connections for class I, class II, or class III liquids which are made and broken shall be located outside of buildings at a location free from any source of ignition and not less than five feet away from any building opening. Such connections shall be closed and liquid-tight when not in use and shall be properly identified.

(f) Tank openings provided for purposes of vapor recovery shall be protected against possible vapor release by means of a spring-loaded check valve or dry-break connection or other approved device unless the opening is pipe-connected to a vapor processing system. Openings designed for combined fill and vapor recovery shall also be protected against vapor release unless connection of the liquid delivery line to the fill pipe simultaneously connects the vapor recovery line. All connections shall be vapor-tight.

Source

The provisions of this § 13.24a adopted July 17, 1981, effective July 18, 1981, 11 Pa.B. 2571.

§ 13.25. Vents for underground tanks.

(a) Vent pipes from underground storage tanks storing class I liquids shall be so located that the discharge point is outside of buildings, higher than the fill-pipe opening, and not less than 12 feet above the adjacent ground level. Vent pipes shall discharge only upward in order to disperse vapors. Vent pipes shall not be obstructed by devices provided for vapor recovery or other purposes unless the tank and associated piping and equipment are otherwise protected to limit back-pressure development to less than the maximum working pressure of the tank and equipment by the provision of pressure-vacuum vents, rupture discs, or other tank-venting devices installed in the tank-vent lines. Vent outlets and devices shall be protected to minimize the possibility of blockage from weather, dirt, or insect nests and shall be so located and directed that flammable vapors will not accumulate or travel to an unsafe location, enter building openings, or be trapped under eaves. Tanks containing class IA liquids shall be equipped with pressure and vacuum venting devices which shall be normally closed except when venting under pressure or vacuum conditions. Tanks storing class IB or class IC liquids shall be equipped with pressure-vacuum vents or with listed flame arresters. Tanks storing gasoline are exempt from the requirements for pressure and vacuum venting devices, except as required to prevent excessive back pressure, or flame arresters, provided the vent does not exceed 3 inches nominal inside diameter.

(b) Vent pipes from tanks storing class II or class III liquids shall terminate outside of building and higher than the fill-pipe opening. Vent outlets shall be above normal snow level. They may be fitted with return bends, coarse screens, or other devices to minimize ingress of foreign material. Vent piping shall be constructed in accordance with § 13.51 (relating to scope and application).

(c) Tank-venting systems shall be provided with sufficient capacity to prevent blowback of vapor or liquid at the fill opening while the tank is being filled. Vent pipes shall not be less than 1¼ inch nominal inside diameter. The required venting capacity depends upon the filling or withdrawal rate, whichever is greater, and the vent-line length. Unrestricted vent piping sized in accordance with the following table will prevent back-pressure development in tanks from exceeding 2.5 p.s.i.g. Where tank venting devices are installed in vent lines, their flow capacities shall be determined in accordance with § 13.8(b)(6) (relating to vents).

MAXIMUM FLOW IN GPM	LENGTH OF PIPE - VENT LINES OF 50 FEET, 100 FEET, AND 200 FEET OF PIPE PLUS 7 ELLS - (IN FEET)		
	50	100	200
	VENT LINE DIAMETERS (IN INCHES)		
100	1¼	1¼	1¼
200	1¼	1¼	1¼
300	1¼	1¼	1½
400	1¼	1½	2
500	1½	1½	2
600	1½	2	2
700	2	2	2
800	2	2	3
900	2	2	3
1000	2	2	3

(d) Vent pipes shall be so laid as to drain toward the tank without sags or traps in which liquid can collect. They shall be located so that they will not be subjected to physical damage. The tank end of a vent pipe shall enter the tank through the top.

(e) When tank vent piping is manifolded, pipe sizes shall be such as to discharge, within the pressure limitations of the system, the vapors they can be required to handle when manifolded tanks are filled simultaneously; except that, for service stations, the capacity of manifolded vent piping shall be sufficient to discharge vapors generated when two manifolded tanks are simultaneously filled.

(f) Vent piping for tanks storing class I liquids shall not be manifolded with vent piping for tanks storing class II or class III liquids, unless positive means are provided to prevent the vapors from class I liquids from entering tanks storing class II or class III liquids, to prevent contamination and possible change in classification of the less volatile liquid.

(g) Where tanks are filled by the use of a pump through tight connections, a vent pipe not less in size than the discharge of the pump shall be used. Under no circumstances shall the vent pipe diameter be less than 1¼ inches nominal inside diameter.

(h) The design and location of vent pipe systems (except those designed for areas of mandatory vapor recovery) shall take into consideration the proximity of neighboring buildings with respect to flammable and noxious vapors.

Source

The provisions of this § 13.25 amended through June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial pages (63477) to (63480).

Cross References

This section cited in 37 Pa. Code § 13.21 (relating to location); 37 Pa. Code § 13.141 (relating to scope and application); 37 Pa. Code § 13.151 (relating to scope and application); and 37 Pa. Code § 13.161 (relating to general provisions).

§ 13.26. Testing.

(a) Before being covered or placed in use, tanks and the piping connected thereto shall be tested for tightness. Tanks shall be tested hydrostatically, by air pressure, or by other methods approved by the fire marshal, at not less than 3 p.s.i.g. nor more than 5 p.s.i.g. When the vertical length of the fill and vent pipes is such that when filled with liquid the static head imposed upon the bottom of the tank exceeds 10 p.s.i.g., the tank and related piping shall be tested hydrostatically to a pressure equal to the static head thus imposed. This test shall be maintained for at least 30 minutes with no drop in pressure or for a sufficient time to complete visual inspection of all joints and connections.

(b) When seepage or vapors in the vicinity of an underground tank, or an accumulation of water in the tank, or if the proximity of the tank to an area of unconfined flammable or combustible liquids or vapors indicate a tank as an obvious or likely source, or where unexplainable losses exceed ¾ of 1.0% of the average monthly receipts, the fire marshal shall be notified and he may require the immediate testing of the tanks. Such testing shall be by approved methods of “standpipe” testing or an approved testing device capable of detecting leaks as small as .05 gallons in one hour, adjusted for variables. Costs attendant to such tests shall be the responsibility of the owners of the tanks. Test records shall be kept for a period of at least 1 year.

(c) In those cases where daily inventory records indicate unexplainable losses exceeding ¾ of 1.0% of the average monthly receipts, the following steps shall be taken in an expeditious manner prior to tank testing.

(1) The inventory record shall be rechecked for error.

(2) If no error is apparent, an independent calculation of apparent loss shall be made starting from a point in time where the records indicate a no loss condition.

(3) If paragraph (2) confirms an apparent loss, the readily accessible physical facilities on the premises shall be carefully inspected for evidence of leakage.

(4) If paragraph (3) does not disclose a leak, the dispensing devices used for the particular product involved in the apparent loss shall be checked for calibration.

(5) If paragraph (4) does not explain the loss, and if the piping system can be tested without the need for excavation, the piping system between the storage tank and dispensers shall be tested under § 13.58 (relating to testing). If it is necessary to excavate to perform a piping test, such a test shall be conducted after a storage tank test has been performed under subsection (b).

(6) If paragraph (5) does not disclose a leak, the storage tanks shall be tested for tightness under subsection (b).

(7) If any of the tests in paragraphs (1) to (6) or investigations indicate the source of the loss, the owner shall take immediate action to correct the system failure.

(d) If paragraphs (1)–(7) do not confirm the apparent loss, the daily inventory shall be continued with a daily independent verification. Additional surveillance of the facility should be engaged to insure against unauthorized removal of the product.

(e) Air pressure tests of tanks or piping containing flammable or combustible liquids are prohibited.

Source

The provisions of this § 13.26 amended June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial page (63480).

Cross References

This section cited in 37 Pa. Code § 13.21 (relating to location); 37 Pa. Code § 13.141 (relating to scope and application); 37 Pa. Code § 13.151 (relating to scope and application); and 37 Pa. Code § 13.161 (relating to general provisions).

§ 13.27. Leaking underground tanks.

An underground tank found to be leaking shall be removed or abandoned in place under § 13.222 (relating to underground tanks); or may be repaired in a manner specifically approved by the fire marshal.

Source

The provisions of this § 13.27 adopted June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131.

Cross References

This section cited in 37 Pa. Code § 13.221 (relating to tanks temporarily out of service).

INSIDE BUILDING STORAGE

§ 13.31. Scope.

The provisions of §§ 13.31–13.38 (relating to inside building storage) apply to unenclosed tanks and tanks enclosed in unfilled vaults within buildings. When tanks are placed in filled enclosures, they shall meet the provisions of this chapter for underground tanks.

Cross References

This section cited in 37 Pa. Code § 13.161 (relating to general provisions).

§ 13.32. Class I liquids.

Tanks for storage of class I liquids shall not be installed inside buildings except as set forth in § 13.141 and § 13.151 (relating to commercial and industrial establishments and processing plants).

Source

The provisions of this § 13.32 amended June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial page (63481).

Cross References

This section cited in 37 Pa. Code § 13.31 (relating to scope); and 37 Pa. Code § 13.161 (relating to general provisions).

§ 13.33. Class II and Class III liquids.

(a) An unenclosed supply tank larger than 10 gallons shall be placed not less than 5 feet horizontally from any fire or flame either in or external to the appliance being served by the tank.

(b) A supply tank located above the lowest story, cellar or basement shall not exceed 60 gallons capacity, and the total capacity of tanks so located shall not exceed 60 gallons.

(c) Except as set forth in subsection (d), a supply tank shall not be larger than 660 gallons. Not more than one 660 gallon tank or two tanks of aggregate capacity of 660 gallons or less shall be connected to one oil-burning appliance, and the aggregate capacity of such tanks installed in the lowest cellar or basement of a building shall not exceed 1,320 gallons. Such tanks may be installed outside aboveground adjacent to buildings, provided the distance to the line of adjoining property is not less than that required by § 13.1 (relating to relative location to property) and tanks shall be suitably protected from physical damage incident to outside use. Outside supply tanks may be equipped with an approved manually operated dispensing device that takes suction through the top of the tank for the purposes of dispensing fuel for use in supplemental heating devices which use identical fuels as that stored in the supply tank. Domestic use of beneath building tanks or of inside storage tanks or containers (including drums) that exceed the requirements of § 13.44 (relating to manner and limitation of storage) is prohibited.

(d) Tanks exceeding 660 gallons individual capacity or 1,320 gallons aggregate capacity in an individual building or in a section of a building separated by fire walls shall be installed in an enclosure constructed in a manner approved by the fire marshal.

Source

The provisions of this § 13.33 amended through October 5, 1984, effective October 6, 1984, 14 Pa.B. 3624. Immediately preceding text appears at serial pages (90106) to (90107).

Cross References

This section cited in 37 Pa. Code § 13.31 (relating to scope); and 37 Pa. Code § 13.161 (relating to general provisions).

§ 13.33a. Tank openings other than vents for tanks inside buildings.

(a) The outlet of a vapor recovery line for which connections are made and broken shall be located outside of buildings at a location free from any source of ignition and not less than 5 feet away from any building opening. Such connections shall be closed and tight when not in use and shall be properly identified.

(b) Tank openings provided for purposes of vapor recovery shall be protected against possible vapor release by means of a spring-loaded check valve or drybreak connections, or other approved device, unless the opening is pipe-connected to a vapor processing system. Openings designed for combined fill and vapor recovery shall also be protected against vapor release unless connection of the liquid delivery line to the fill pipe simultaneously connects the vapor recovery line. All connections shall be vapor-tight.

Source

The provisions of this § 13.33a adopted July 17, 1981; amended June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial pages (63482) to (63483).

§ 13.33b. Fill- and-return piping.

(a) A fill pipe shall terminate outside of a building at a point at least 2 feet from any building opening at the same or lower level. A fill pipe shall terminate in a manner designed to minimize spilling when the filling hose is disconnected. Fill opening shall be equipped with a tight metal cover designed to discourage tampering. Where a supply or storage tank has been removed from within a building, it shall be the responsibility of the owner of the tank to insure that the portion of the fill pipe system terminating outside the building is also removed at the same time to preclude the accidental use of the fill pipe which is no longer connected to the tank.

(b) A return line from a burner or pump to a supply tank shall enter the top of the tank.

(c) Cross connections, except between two supply tanks not exceeding 660 gallon aggregate capacity, permitting gravity flow from one tank to another shall be prohibited.

(d) An auxiliary tank shall be filled by a pump transferring the oil through continuous piping from the supply tank.

(e) An auxiliary tank shall be located at a level above the top of the supply tank from which it is filled.

(f) An auxiliary tank shall be provided with an overflow pipe draining to the supply tank and extending into the top of the supply tank not more than one inch. This requirement shall not apply to an auxiliary tank specifically listed for use without an overflow pipe.

(g) An overflow pipe from an auxiliary tank and a return line from a burner or pump shall have no valves or obstructions.

Source

The provisions of this § 13.33b adopted July 17, 1981; amended June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial pages (63483) to (63484).

§ 13.34. Venting.

Tanks shall have vent openings and vent pipes of sufficient size to prevent abnormal pressure in the tank during filling. Vent pipes shall terminate outside of buildings, higher than the fill pipe opening, and above normal snow accumulation. All domestic fuel tank installations shall be equipped with a signal alarm to prevent overflow. Where tanks are filled by the use of a pump through tight connection, a vent pipe not less in size than the discharge of the pump shall be used. Under no circumstances shall the vent pipe diameter be less than 1¼ inches nominal inside diameter.

Source

The provisions of this § 13.34 amended June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial page (63484).

Cross Reference

This section cited in 37 Pa. Code § 13.31 (relating to scope); and 37 Pa. Code § 13.161 (relating to general provisions).

§ 13.35. Design and construction of tanks.

(a) *General.* Tanks shall be designed and constructed to safely withstand the service to which subjected.

(b) *Materials.* Tanks shall be built of steel unless the character of liquids stored requires other material. Tanks built of materials other than steel shall be designed to specifications embodying principles recognized as good engineering design for the material used. Unlined concrete tanks may be used for storing flammable or combustible liquids having a gravity of 40 API or heavier. Concrete tanks with special lining may be used for other services if the design is in accordance with sound enginering practice. Tanks may have combustible or noncombustible linings. Special engineering consideration is required if the specific gravity of the liquid to be stored exceeds that of water or if the tanks are designed to contain flammable or combustible liquids at a liquid temperature below 0ºF.

(c) *Fabrication.* Fabrication of tanks shall conform to the following:

(1) Tanks may be of any shape or type consistent with sound engineering design. Metal tanks shall be welded, riveted and caulked, brazed or constructed by use of a combination of these methods. Filler metal used in brazing shall be nonferrous metal or an alloy having a melting point above 1000ºF. and below that of the metal joined.

(2) The following shall be the minimum requirements for construction of steel inside tanks:

(i) Underwriters' Laboratories, Incorporated, Standard No. 80–1974, *Specifications for Steel Inside Tanks for Oil Burner Fuel,* shall apply to tanks of 660 gallons capacity or less.

(ii) Enclosed tanks of greater capacity than 660 gallons shall meet applicable design and construction requirements of this chapter for underground tanks if horizontal, and for aboveground tanks if vertical.

(3) If the vertical length of the fill and vent pipes is such that when filled with liquid the static head imposed upon the bottom of the tank exceeds ten p.s.i.g. the tank shall be designed for the maximum static head which will be imposed.

Source

The provisions of this § 13.35 amended June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial pages (63484) to (63485), and (5133).

Cross References

This section cited in 37 Pa. Code § 13.31 (relating to scope); and 37 Pa. Code § 13.161 (relating to general provisions).

§ 13.36. Tank supports.

Inside storage and supply tanks shall be securely supported by rigid, noncombustible supports to prevent settling, sliding, or lifting.

Source

The provisions of this § 13.36 amended June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial page (5133).

Cross References

This section cited in 37 Pa. Code § 13.31 (relating to scope); and 37 Pa. Code § 13.161 (relating to general provisions).

§ 13.37. Drainage.

If a supply tank larger than 10 gallons is provided with an opening in the bottom for use as a burner supply connection or as a drain, the tank shall be pitched toward the opening with a slope of not less than 1/4 inch per foot of length.

Source

The provisions of this § 13.37 amended June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial pages (5133) to (5134).

Cross References

This section cited in 37 Pa. Code § 13.31 (relating to scope); and 37 Pa. Code § 13.161 (relating to general provisions).

§ 13.38. Testing.

(a) All tanks shall be tested for strength and tightness before they are placed in service in accordance with the applicable code or standard under which they were built. This test shall be made at operating pressure with air, inert gas, or water prior to placing the tank in service.

(b) When the vertical length of the fill and vent pipes is such that when filled with liquid the static head imposed upon the bottom of the tank exceeds ten p.s.i.g. the tank and related piping shall be tested hydrostatically to a pressure equal to the static head thus imposed.

Cross References

This section cited in 37 Pa. Code § 13.31 (relating to scope); and 37 Pa. Code § 13.161 (relating to general provisions).

CLOSED CONTAINERS

§ 13.41. Scope.

The provisions set forth in §§ 13.41–13.46 (relating to closed containers) apply to the storage of flammable or combustible liquids in drums or other portable closed containers not exceeding 60 gallons individual capacity inside buildings, or outside of buildings in areas used solely for such storage, but are not applicable to storage in bulk plants, service stations, commercial and industrial establishments, processing plants, heating and power devices and distilleries.

Source

The provisions of this § 13.41 amended June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial page (5134).

Cross References

This section cited in 37 Pa. Code § 13.141 (relating to scope and application); and 37 Pa. Code § 13.151 (relating to scope and application).

§ 13.42. Design and construction of inside storage rooms.

Inside storage rooms shall comply with the requirements of the Fire and Panic Act, except in cities of the Second Class A. In cities of the Second Class A, design and construction of inside storage rooms shall be in a manner approved by the fire marshal.

Source

The provisions of this § 13.42 amended June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial page (5135).

Cross References

This section cited in 37 Pa. Code § 13.41 (relating to scope); 37 Pa. Code § 13.141 (relating to scope and application); and 37 Pa. Code § 13.151 (relating to scope and application).

§ 13.43. Storage cabinets.

Outside storage cabinets shall be constructed and utilized in an approved manner.

Source

The provisions of this § 13.43 amended June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial pages (5135) to (5136).

Cross References

This section cited in 37 Pa. Code § 13.41 (relating to scope); 37 Pa. Code § 13.141 (relating to scope and application); and 37 Pa. Code § 13.151 (relating to scope and application).

§ 13.44. Manner and limitations of storage.

(a) Flammable or combustible liquids, including stock for sale, shall not be stored near exits, stairways, or corridors leading to the exits or stairways.

(b) The storage of flammable or combustible liquids in closed containers shall comply with the following occupancy provisions, except that the fire marshal may impose a quantity limitation or require greater protection if he determines that an unusual hazard to life or property is involved, or he may authorize an increase of the given amounts if the type construction, fire protection provided, or other factors substantially reduce the hazard:

(1) Dwellings and residential buildings containing not more than two dwelling units and attached and detached garages. Storage in excess of 5 gallons of class I liquid is prohibited. Storage in excess of 20 gallons of class II or class III liquids combined is prohibited. Flammable or combustible liquids shall be stored in closed metal containers, safety cans, or approved nonmetallic containers. No individual container shall exceed 5 gallons capacity. Flammable and combustible liquids shall not be transferred or dispensed from containers to fuel tanks, reservoir tanks, or other containers inside of buildings. This section does not pertain to supply tanks connected by piping to oil burners or power devices. See § 13.161 (relating to general provisions).

(2) [Reserved].

(3) Hospitals, nursing homes and related health care facilities. Inside storage, handling, use and fire control of flammable or combustible liquids throughout this Commonwealth shall be in accordance with 28 Pa. Code (relating to health and safety).

Source

The provisions of this § 13.44 amended through October 5, 1984, effective October 6, 1984, 14 Pa.B. 3624. Immediately preceding text appears at serial pages (90113) to (90114).

Cross References

This section cited in 37 Pa. Code § 13.33 (relating to class II and class III liquids); 37 Pa. Code § 13.41 (relating to scope); 37 Pa. Code § 13.45 (relating to fire safety rules); 37 Pa. Code § 13.141 (relating to scope and application); and 37 Pa. Code § 13.151 (relating to scope and application).

§ 13.45. Fire safety rules.

(a) Suitable fire extinguishers are recommended wherever flammable or combustible liquids are stored or used inside buildings described in § 13.44(b)(1) (relating to manner and limitations of storage).

(b) [Reserved]

(c) Open flames, smoking and other sources of ignition are not permitted in flammable or combustible liquid storage rooms.

(d) Materials which may react with water to produce flammable vapors may not be stored in the same room with flammable or combustible liquids.

(e) Use of class I liquids as degreasing or cleaning agents are prohibited.

Source

The provisions of this § 13.45 amended June 22, 1984, effective June 23, 1984, 14 Pa.B. 2131; corrected October 21, 1988, effective June 23, 1984, 18 Pa.B. 4789. Immediately preceding text appears at serial page (90114).

Cross References

This section cited in 37 Pa. Code § 13.41 (relating to scope); 37 Pa. Code § 13.141 (relating to scope and application); and 37 Pa. Code § 13.151 (relating to scope and application).

§ 13.46. Storage outside of buildings.

(a) *Allowable construction.* Drums constructed in accordance with DOT specifications may be stored out of doors in areas used solely for such storage. Drums equipped with dispensing devices shall be equipped with pressure and vacuum relief in order to prevent drum rupture under fire conditions.

(b) *Basic safeguards.* Basic safeguards for outdoor storage shall conform to the following:

(1) Drums may not be stored outside on building platforms or between buildings, or in a location adjacent thereto, in such a manner that they would contribute to the spread of fire.

(2) Storage of class I liquids shall be limited to groups of 100 drums or less located at least 60 feet from the nearest building or line of adjoining property that may be built upon and each group shall be separated by at least 40 feet. Storage of class II or class III liquids shall be limited to groups of 300 drums or less located at least 50 feet from the nearest building or line of adjoining property that may be built upon and each group shall be separated by at least 30 feet. These distances may be reduced 50% if sprinklers and drainage away from exposures are provided. In particular installations, the distance requirements to buildings may be altered at the discretion of the fire marshal after consideration of the height, size and character of construction, and occupancy of the exposed buildings. The height of piles shall be consistent with stability and strength of containers. No container may be more than 200 feet from a 12 foot wide access way to permit approach of fire control apparatus.

(3) Drum storage shall be located to prevent runoff, or drainage toward other storage or buildings. The area shall be kept clear of grass, weeds and other foreign combustibles. Signs shall be posted prohibiting open flames and smoking.

(4) Drum storage for private purposes shall be in accordance with § 13.1(h) (relating to relative location to property).

(5) At least one properly maintained 20BC fire extinguisher shall be available at all times at areas of outside container storage.

Source

The provisions of this § 13.46 amended June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial pages (63486) to (63487).

Cross References

This section cited in 37 Pa. Code § 13.1 (relating to relative location to property); 37 Pa. Code § 13.41 (relating to scope); 37 Pa. Code § 13.101 (relating to storage); 37 Pa. Code § 13.141 (relating to scope and application); and 37 Pa. Code § 13.151 (relating to scope and application).

PIPING, VALVES AND FITTINGS

§ 13.51. Scope and application.

(a) Sections 13.51–13.58 (relating to piping, valves and fittings) do not apply to tubing or casing on oil wells and piping connected directly thereto, floating craft or aircraft, or piping within the scope of an applicable boiler and pressure vessel code.

(b) Piping systems consist of pipe, flanges, bolting, gaskets, valves, fittings, the pressure containing parts of other components such as expansion joints and strainers, and devices which serve such purposes as mixing, separating, snubbing, distributing, metering or controlling flow.

Cross References

This section cited in 37 Pa. Code § 13.8 (relating to vents); 37 Pa. Code § 13.25 (relating to vents for underground tanks); 37 Pa. Code § 13.52 (relating to general design specifications); and 37 Pa. Code § 13.161 (relating to general provisions).

§ 13.52. General design specifications.

(a) The design, including selection of materials, fabrication, assembly and the test and inspection of piping systems containing flammable or combustible liquids shall be suitable for the expected working pressures and structural stresses. Conformity with the applicable provisions of the American National Standard Code for Pressure Piping (ANSI B31); and §§ 13.51–13.58 (relating to piping, valves and fittings) shall be considered *prima facie* evidence of compliance with the provisions of this section.

(b) Piping systems between storage tanks and dispensing devices at service stations shall be installed underground.

Source

The provisions of this § 13.52 amended June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial pages (63487) and (5141).

Cross References

This section cited in 37 Pa. Code § 13.8 (relating to vents); 37 Pa. Code § 13.51 (relating to scope and application); and 37 Pa. Code § 13.161 (relating to general provisions).

§ 13.53. Materials.

(a) Material for piping, valves, or fittings shall be of steel or nodular iron except as set forth in subsections (b) and (c). Nodular iron shall conform to ASTM A395-77, Ferritic Ductile Iron Pressure Retaining Castings for Use at Elevated Temperatures.

(b) Materials other than steel or nodular iron may be used underground or if required by the properties of the flammable or combustible liquid handled.

(c) Materials other than steel or nodular iron shall be designed to specifications embodying principles recognized as good engineering design for the material used and shall be approved by the fire marshal.

(d) When low melting point materials such as aluminum and brass, or materials that soften on fire exposure such as plastic, or nonductile materials such as cast iron are necessary, special consideration shall be given to their behavior on fire exposure. If such materials are used in aboveground piping systems or inside buildings, they shall be suitably protected against fire exposure or so located that any spill resulting from the failure of these materials do not unduly expose persons, buildings, or structures, and are readily controlled by remote valves.

Source

The provisions of this § 13.53 amended June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial page (5141).

Cross References

This section cited in 37 Pa. Code § 13.8 (relating to vents); 37 Pa. Code § 13.51 (relating to scope and application); 37 Pa. Code § 13.52 (relating to general design specifications); and 37 Pa. Code § 13.161 (relating to general provisions).

§ 13.54. Pipe joints.

(a) Joints shall be made liquid-tight and shall be either welded, flanged or threaded, except that listed flexible connectors may be used. Threaded joints shall be made up tight with a suitable thread sealant or lubricant. Joints in piping systems handling class I liquids shall be welded when located in concealed spaces within buildings.

(b) Pipe joints dependent upon the friction characteristics or resiliency of combustible materials for mechanical continuity or liquid-tightness of piping shall not be used inside buildings. They may be used outside of buildings above or below ground. If used aboveground outside of buildings, the piping shall either be secured to prevent disengagement at the fitting, or the piping system shall be so designed that any spill resulting from disengagement could not unduly expose persons, important buildings or structures, and could be readily controlled by remote valves.

Source

The provisions of this § 13.54 amended June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial pages (5141) to (5142).

Cross References

This section cited in 37 Pa. Code § 13.8 (relating to vents); 37 Pa. Code § 13.51 (relating to scope and application); 37 Pa. Code § 13.52 (relating to general design specifications); and 37 Pa. Code § 13.161 (relating to general provisions).

§ 13.55. Supports.

Piping systems shall be substantially supported and protected against physical damage and excessive stresses arising from settlement, vibration, expansion, or contraction. The installation of nonmetallic piping shall be in accordance with the manufacturer’s instructions.

Source

The provisions of this § 13.55 amended June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial page (5142).

Cross References

This section cited in 37 Pa. Code § 13.8 (relating to vents); 37 Pa. Code § 13.51 (relating to scope and application); 37 Pa. Code § 13.52 (relating to general design specifications); and 37 Pa. Code § 13.161 (relating to general provisions).

§ 13.56. Protection against corrosion.

Corrosion protection for the tank and its piping shall be provided for by one or more of the following methods:

(1) Use of protective coatings or wrappings.

(2) Cathodic protection.

(3) Corrosion resistant materials of construction.

Cross References

This section cited in 37 Pa. Code § 13.8 (relating to vents); 37 Pa. Code § 13.51 (relating to scope and application); 37 Pa. Code § 13.52 (relating to general design specifications); and 37 Pa. Code § 13.161 (relating to general provisions).

§ 13.57. Valves.

Piping systems shall contain a sufficient number of valves to operate the system properly and to protect the plant. Piping systems in connection with pumps shall contain a sufficient number of valves to control properly the flow of liquid in normal operation and in the event of physical damage. Each connection to piping by which equipment such as tank cars, tank vehicles or marine vessels discharge liquids into storage tanks shall be provided with a check valve for automatic protection against back-flow if the piping arrangement is such that back-flow from the system is possible.

Source

The provisions of this § 13.57 amended June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial pages (5142) and (63490).

Cross References

This section cited in 37 Pa. Code § 13.8 (relating to vents); 37 Pa. Code § 13.51 (relating to scope and application); 37 Pa. Code § 13.52 (relating to general design specifications); and 37 Pa. Code § 13.161 (relating to general provisions).

§ 13.58. Testing.

All piping before being covered, enclosed, or placed in use shall be tested hydrostatically, with air pressure, or by other methods approved by the fire marshal. If piping is tested hydrostatically, the test pressure shall be 150% of the maximum anticipated pressure of the system. If piping is tested pneumatically the test pressure shall be 110% of the maximum anticipated pressure of the system, but not less than 5 p.s.i.g. at the highest point of the system. A pneumatic test shall include a preliminary check at not more than 25 p.s.i.g. The pressure shall be increased gradually in steps providing sufficient time to allow the piping to equalize strains during the test and to check for leaks. The test shall be maintained for at least ten minutes with no drop in pressure or for sufficient time to complete visual inspection of all joints and connections.

Cross References

This section cited in 37 Pa. Code § 13.8 (relating to vents); 37 Pa. Code § 13.26 (relating to testing); 37 Pa. Code § 13.51 (relating to scope and application); 37 Pa. Code § 13.52 (relating to general design specifications); and 37 Pa. Code § 13.161 (relating to general provisions).

Subchapter B. PARTICULAR ESTABLISHMENTS AND USES

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BULK PLANTS

§ 13.101. Storage.

(a) Class I liquids shall be stored in closed containers or in storage tanks aboveground outside of buildings, or underground.

(b) Class II or class III liquids shall be stored in containers or in tanks within buildings, aboveground outside of buildings, or underground.

(c) Outside container storage shall be in accordance with § 13.46 (relating to storage outside of buildings).

(d) The use of an underground tank for bulk plant storage purposes in lieu of the purpose for which it was originally installed and approved, such as service station tanks, is prohibited. Exceptions will be made where the requirements of this subpart are met, that is, loading rack distance requirements to property lines and buildings, pump and daily gauging requirements, and the like, and a written approval has been issued based on proper application and drawings submitted for the use of the tank and related pumping equipment as a bulk plant.

Source

The provisions of this § 13.101 amended June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial page (63492).

§ 13.102. Pumps.

Pumps shall be of a fixed type substantially anchored or attached to a noncombustible base. Pumps shall be designed and equipped for use with flammable or combustible liquids and constructed so that no part of the system will be subjected to pressures above its allowable working pressure. Pumps, except those of submergible design, installed outside of buildings, shall be located not less than 10 feet from lines of adjoining property and not less than 5 feet from any building opening. Pumps shall be protected against physical damage. Exception: Pumps, which are an integral part of a tank vehicle which is operated and maintained in accordance with 67 Pa. Code Chapter 403 (relating to hazardous substances), may be used for handling crude oil in crude-producing areas where electrical power is impracticable and under emergency conditions such as leaking tanks, or for tank maintenance purposes. These pumps shall be provided with automatic means to prevent pressure in excess of the design working pressure of the accessories, piping and hose.

Source

The provisions of this § 13.102 amended June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial page (63492).

§ 13.103. Pump enclosures.

Construction of protective enclosures for pumping equipment shall be of noncombustible materials throughout and, adequate ventilation shall be provided for such enclosures to prevent the accumulation of flammable vapors in hazardous concentrations. Design of ventilation systems shall take into account the relatively high specific gravity of the vapors. Ventilation may be provided by adequate openings in outside walls at floor level, unobstructed except by louvers or coarse screens. When natural ventilation is impracticable, mechanical ventilation shall be provided. Mechanical systems for removing flammable vapors shall be designed, installed, and operated in accordance with approved standards.

Source

The provisions of this § 13.103 amended June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial page (63492).

§ 13.104. Buildings.

Construction, exits, heating, ventilation and fire control of buildings housing pumping equipment shall be in accordance with the requirements of the Fire and Panic Act, except in cities of the Second Class A. In cities of the Second Class A, construction, exits, heating, ventilation and fire control shall be in a manner approved by the fire marshal.

Source

The provisions of this § 13.104 amended June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial page (63493).

§ 13.104a. Vapor processing systems.

(a) Vapor processing system components consisting of hose nozzle valves, blowers or vacuum pumps, flame arresters or systems for prevention of flame propagation, controls, and vapors processing equipment shall be individually approved for use in a specified manner.

(b) Dispensing devices used with a vapor processing system shall be approved. Existing listed or labeled dispensing devices may be modified for use with vapor processing systems provided they are ''Listed by Report'' as specified in § 13.113a(b) (relating to vapor recovery system).

(c) Means shall be provided in the vapor return path from each dispensing outlet to prevent the discharge of vapors when the hose nozzle valve is in its normal nondispensing position.

(d) Vapor processing systems employing blower-assist shall not be used unless the system is designed to prevent flame propagation through system piping, processing equipment, and tanks.

(e) If a component is likely to contain a flammable vapor-air mixture under operating conditions, and can fail in a manner to ignite the mixture, it shall be designed to withstand an internal explosion without failure to the outside.

(f) Vapor processing equipment shall be located outside of buildings at least ten feet from adjacent property lines which can be built upon, except as provided for in subsection (g). Vapor processing equipment shall be located a minimum of 20 feet from dispensing devices. Processing equipment shall be protected against physical damage by the provision of guard rails, curbs, or fencing.

(g) Where the required distance to adjacent property lines which can be built upon as specified in subsection (f) cannot be obtained, means shall be provided to protect vapor processing equipment against fire exposure. Such means may include protective enclosures which extend at least 18 inches above the equipment, constructed of fire resistant or noncombustible materials, installation in below-grade spaces, or protection with an approved water spray system. If protective enclosures or below-grade spaces are used, positive means shall be provided to ventilate the volume within the enclosure to prevent pocketing of flammable vapors. In no case shall vapor processing equipment so protected be located within 5 feet of adjacent property lines which can be built upon.

(h) Electrical equipment shall be in accordance with the National Electrical Code.

(i) Vents on vapor processing systems shall be not less than 12 feet above adjacent ground level, with outlets so directed and located that flammable vapors will not accumulate or travel to an unsafe location or enter buildings.

(j) Combustion or open flame type devices shall not be installed in a classified area. See the National Electrical Code.

Source

The provisions of this §§ 13.104a adopted July 17, 1981, effective July 18, 1981, 11 Pa.B. 2571.

§ 13.105. Loading and unloading.

(a) *Truck loading racks.* Truck loading racks shall conform to the following:

(1) *Location.* Truck loading racks shall be separated from aboveground tanks, warehouses, other plant buildings, and nearest line of adjoining property that may be built upon by a clear distance of not less than 25 feet for class I liquids and 15 feet for class II and class III liquids measured from the nearest position of any fill riser. Shelter for pumps or loading personnel may be part of the loading rack. Loading racks shall be designed and equipped for the specific purpose of handling flammable or combustible liquids so that no part of the loading rack system will be subjected to pressures or circumstances beyond its designed use or capabilities.

(2) *Static protection.* Racks dispensing class I liquids into open domes of tank vehicles, and racks dispensing class II or class III liquids into open domes of tank vehicles which may contain flammable vapors from previous cargoes of class I liquids shall be equipped with protection against static sparks during tank vehicle filling. Protection shall consist of a metallic bond-wire permanently electrically connected to the fill-stem or some part of the fill-stem piping. The free end of such wire shall be provided with a clamp or similar device for convenient attachment to some metallic part of the cargo tank of the tank vehicle. The bond-wire connection shall be made prior to opening the dome covers. It shall be maintained in place during entire filling operation and the dome covers shall be securely closed before the bond-wire is disconnected from the cargo tank.

(b) *Tank car racks.* Class I liquids shall not be discharged from nor loaded into tank cars unless protection against stray currents has been provided and is used. Protection shall be designed and installed in accordance with *Static Electricity,* NFPA No. 77. The fire marshal may require tank cars to be unloaded through the dome or top outlet if escaping liquid would gain access to waterways, sewage systems, or endanger surrounding property.

(c) *Container filling facilities.* Class I liquids shall not be run into containers unless the nozzle and container are electrically interconnected. There shall be compliance with the provisions of this subsection if the metallic floorplate on which the container stands while filling is electrically connected to the fill stem, or where the fill stem is bonded to the container during filling operations by means of a bond-wire.

(d) *Drainage and waste disposal.* Provisions shall be made to prevent flammable or combustible liquids, which may be spilled at loading or unloading points, from entering sewers and drainage systems or natural waterways. Connections to such sewers, drains, or waterways by which flammable or combustible liquids might enter shall be provided with separator boxes or other approved means whereby such entry is precluded. Crankcase drainings and flammable or combustible liquids shall not be dumped into sewers, but shall be stored in tanks or containers equipped with pressure and vacuum relief with flame arresters outside of any building until removed from the premises.

(e) Equipment such as piping, pumps, meters and hoses which does not drain completely and is used for the transfer of class I liquids between storage tanks and the fill-stem of the loading rack shall not be utilized for transfer of class II or class III liquids unless completely purged of any residue of class I liquid.

(f) Dispersing flammable or combustible liquids from a tank vehicle or tank car into containers for private use, or into tanks of motor vehicles, is prohibited except for those tanks or containers constructed, located and used in accordance with § 13.1(h) (relating to relative location to property), special mobile equipment, and supply tanks for oil burning appliances or equipment.

Source

The provisions of this § 13.105 amended June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial pages (63494) to (63495), and (5147).

Cross References

This section cited in 37 Pa. Code § 14.7 (relating to dispensing of Class I and Class II liquids from tank vehicles).

§ 13.106. Electrical equipment.

All electrical equipment and wiring shall be of a type specified by, and shall be installed in accordance with the National Electrical Code (NFPA 70–1981).

Source

The provisions of this § 13.106 amended June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial pages (5147) to (5150).

§ 13.107. Sources of ignition.

(a) Class I liquids shall not be handled, drawn, nor dispensed where flammable vapors may reach a source of ignition. Smoking shall be prohibited except in designated localities. “No Smoking” signs shall be conspicuously posted where hazard from flammable vapors is normally present.

(b) Use of class I liquids as degreasing or cleaning agents shall be prohibited.

§ 13.108. Fire control.

(a) At least two properly maintained 20BC fire extinguishers shall be located within 75 feet of the loading rack. Additional fire protection equipment may be required by the fire marshal if a tank of more than 50,000 gallons individual capacity contains class I liquid.

(b) At remote crude storage and pumping areas a properly maintained 20BC fire extinguisher shall be available during those periods of time that the tanks or related equipment are being attended or utilized.

Source

The provisions of this § 3.108 amended June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial page (5150).

SERVICE STATIONS

§ 13.111. Storage and handling.

(a) *General provisions.* Storage and handling of liquids in service stations shall conform to the following:

(1) Apparatus dispensing class I liquids into the fuel tanks of motor vehicles of the public shall not be located at a bulk plant unless separated by a fence or similar barrier from the area in which bulk operations are conducted.

(2) Class I liquids, for use other than motor fuels–except prepackaged items–shall be stored outside in closed containers not exceeding 60 gallons aggregate capacity or in tanks located underground. Class I liquids which are used as motor fuels shall be stored in tanks located underground, except as provided for in § 13.1(5)(h) (relating to relative location to property).

(3) Class II and class III liquids, for use other than motor fuels, may be stored outside in closed containers not exceeding 120 gallons aggregate capacity; in a single outside permanently installed aboveground storage tank not exceeding 300 gallons capacity which meets the installation requirements of §§ 13.1–13.11 (relating to outside and aboveground storage), or in tanks located underground.

(4) Aboveground tanks located in an adjoining bulk plant may be connected by piping to service station underground tanks if, in addition to valves at aboveground tanks, valves are also installed within control of service station personnel and the vent pipes of the underground tanks are raised to a point higher than the tops of the aboveground tanks.

(b) *Inside buildings.* Under no circumstances shall the fuel tank of a motor vehicle be drained inside of a service station building, except when the procedure utilizes approved equipment designed specifically for draining motor vehicle fuel tanks.

(c) *Labeling.* Sale or purchase of flammable or combustible liquids shall not be made in containers unless the containers are clearly marked with the name of the product contained therein.

(d) *Dispensing to containers.*

(1) Dispensing, or permitting the dispensing of flammable or combustible liquids into portable containers is not permitted unless the container is of sound metal construction, or is of approved nonmetallic construction, has a tight closure with screwed or spring cover, and is fitted with a spout or so designed that the contents may be poured without spilling. Portable containers constructed of nonmetallic materials shall conspicuously display an embossment, by the manufacturer, of the logogram of a nationally recognized testing laboratory. Under no circumstances shall delivery of gasoline be made into glass containers.

(2) Dispensing, or permitting the dispensing of class I liquids into containers, drums or tanks which are to be transported in or on a motor vehicle, shall be limited to an aggregate maximum of 15 gallons at any one time, unless the transporting motor vehicle complies with and is operated in accordance with regulations promulgated by the Pennsylvania Department of Transportation, Hazardous Substance Division.

Source

The provisions of this § 13.111 amended June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial pages (5150) and (55333).

Cross References

This section cited in 37 Pa. Code § 13.115 (relating to attended self-service stations).

§ 13.112. Location of dispensing systems.

The location of dispensing systems shall conform to the following:

(1) Dispensing devices at automotive service stations shall be so located that all parts of the vehicle being served shall be on the premises of the service station and in areas where private thoroughfares exist, the vehicle shall be parked entirely off such thoroughfares, with the exception that existing service stations for which prior approval has been issued, not meeting this requirement, may continue in service without an increase in number or capacity of tanks, if properly maintained. Existing dispensing devices may be replaced; however, no additional devices may be installed. No dispensing device shall be placed within the legal right-of-way limits of any state highway or any highway under the jurisdiction of the Department of Transportation.

(2) Inside location of approved dispensing devices may be acceptable where an outside location is impracticable. Such installation shall be made in an approved manner.

(3) Dispensing devices installed abovegrade, outside of buildings, shall be located not less than 10 feet from lines of adjoining property and not less than 5 feet from any building openings.

(4) Dispensing devices shall not be located within 200 feet of an underground mine opening.

(5) Dispensing devices shall not be placed within 20 feet of a liquified petroleum container or any activity involving fixed sources of ignition.

(6) Dispensing devices designed or modified for private use may be located on the service station property without restriction as to location provided such location is not otherwise prohibited by this section.

Source

The provisions of this § 13.112 amended June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial pages (55333) to (55334).

Cross References

This section cited in 37 Pa. Code § 13.114 (relating to remote or submergible pumping systems).

Notes of Decisions

A pump lessor who is involved in the maintenance, installation, or placement of pumps is not free from a duty of care with respect to the location of its chattels, and may be liable to injured patrons if the location of its pumps exposes patrons to an unreasonable risk of harm from passing motorists or other outside sources. *Migyanko v. Thistlethwaite,* 275 Pa. Super. 500, 506, 419 A.2d 12, 14–16 (1980).

§ 13.113. Dispensing devices.

(a) Flammable or combustible liquids shall be transferred from tanks by means of fixed pumps substantially attached to a noncombustible base and so designed and equipped as to allow control of the flow and to prevent leakage or accidental discharge. Integral pumps attached to the tanks shall be considered as meeting this requirement. Supplemental means shall be provided outside of the dispensing device whereby the source of power may be readily disconnected in the event of fire or other accident. Dispensing devices shall be of approved type. The conversion or retrofit of a standard dispensing device for use as a special type dispenser must be done in an approved manner. Dispensing devices may be rebuilt provided replacement components are equal to the original components and are of approved type. Consoles, accuators, monitors, card readers, etc. regardless of location must be approved for use with the accompanying dispensing device. Flammable or combustible liquids shall not be dispensed by pressure or gravity from drums, barrels, and similar containers. Gear pumps or similar positive displacement devices taking suction through the top of the container shall be used. Flammable or combustible liquids shall not be dispensed by a device that operates through pressure within a storage tank.

(b) Dispensing devices, except those attached to containers, shall be mounted on a concrete island or otherwise protected against collision damage by suitable means.

(c) Satellite dispensing devices used in conjunction with master dispensing devices, such as, but not limited to, systems utilized for truck tractor refueling shall be of approved type.

(d) The use of a multi-product or multi-hose dispensing device for flammable or combustible liquids which are to be used as heating fuel is prohibited unless the entire device is used exclusively for dispensing of identical grades of heating fuel.

Source

The provisions of this § 13.113 amended June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial pages (55334) and (63496).

§ 13.113a. Vapor recovery system.

(a) Dispensing devices incorporating provisions for vapor recovery shall be approved.

(b) Existing approved dispensing devices may be modified for vapor recovery provided that the modifications made are “Listed by Report” by a nationally recognized testing laboratory. The “Listing by Report” shall contain a description of the component parts used in the modifications and the recommended method of installation on specific dispensers and it shall be made available on request to the authority having jurisdiction.

(c) Hose nozzle valves used on vapor recovery systems shall be approved.

(d) Means shall be provided in the vapor return path from each dispensing outlet to prevent the discharge of vapors when the hose nozzle valve is in its normal nondispensing position.

Source

The provisions of this § 13.113a adopted July 17, 1981, effective July 18, 1981, 11 Pa.B. 2571.

Cross References

This section cited in 37 Pa. Code § 13.104a (relating to vapor processing systems).

§ 13.114. Remote or submergible pumping systems.

(a) *Application.* This section applies to systems for dispensing flammable or combustible liquids when such liquids are transferred from underground storage to individual or multiple dispensing devices by pumps located elsewhere than at the dispensing devices.

(b) *Pumps.* Pumps shall be designed or equipped so that no part of the system may be subjected to pressures above its allowable working pressure. Pumps installed above grade and outside of buildings shall be located not less than 10 feet from lines of adjoining property which may be built upon, and not less than 5 feet from any building opening. If an outside pump location is impracticable, pumps may be installed inside of buildings, as set forth in § 13.112(2) (relating to location of dispensing systems) or in pits as set forth in subsection (c). Pumps shall be substantially anchored and protected against physical damage by vehicles.

(c) *Pits.* Pits for subsurface pumps or piping manifolds of submergible pumps shall be able to withstand the external forces to which they may be subjected without damage to the pump, tank, or piping. The pit shall be no larger than necessary for inspection and maintenance and shall be provided with a tight fitting cover.

(d) *Controls.* Controls of remote pumping systems shall conform to the following:

(1) A control shall be provided that permits the pump to operate only if a dispensing nozzle is removed from its bracket on the dispensing device and the switch on this dispensing device is manually actuated. This control shall also stop the pump when all nozzles have been returned to their brackets.

(2) A clearly identified switch, readily accessible in case of fire or physical damage at any dispensing device, shall be provided to shut off the power to the pump motors.

(e) *Emergency valves.* An approved emergency shut-off valve shall be installed at the base of each dispensing device which shuts off the flow of flammable or combustible liquids if the dispenser is damaged by impact or if a fire occurs in the immediate area.

(f) *Testing.* After completion of the installation, including paving, that portion of the pressure piping system between the pump discharge and the connection for the dispensing facility shall be tested for at least 30 minutes at a pressure 50% above the maximum operating pressure. Such tests shall be repeated at 5 year intervals.

Source

The provisions of this § 13.114 amended June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial pages (63497) to (63498).

§ 13.115. Attended self-service stations.

(a) *Dispensing devices.* Only approved special dispensing devices which are designed for self-service use or have been modified in an approved manner for self-service use and are remotely controlled by equipment specifically approved for use with such special dispensing devices are permitted at self-service stations. The use of control or dispensing equipment comprised of an assemblage of components which, as a complete unit, has not been approved by a nationally recognized testing laboratory for the use intended is prohibited.

(b) *Supervision of dispensing.* There shall be at least one attendant or supervisor on duty while the station is open to the public. The primary function of the attendant or supervisor shall be to supervise, observe and control the dispensing of flammable or combustible liquids. At all times during the dispensing of flammable or combustible liquids, the attendant shall remain at the principal control location, that is, within arms length of the remote control facilities. The dispensing operations shall at all times be in clear view of the attendant, and placing or permitting any obstacle between the dispensing operation and the attendant so as to obstruct the view of the attendant is prohibited. The attendant shall prevent the dispensing of flammable or combustible liquids into portable containers that do not comply with § 13.111 (relating to storage and handling). The attendant shall control sources of ignition and immediately handle accidental spills and use fire extinguishers if needed. The attendant or supervisor on duty shall be capable of performing the functions and assuming the responsibilities covered in this section.

(c) *Emergency controls.* Emergency controls, including the main power shutoff switch or switches, are required and shall be independent of the approved special dispensing devices and control equipment. Such controls and switches shall be installed at an accessible location not more than 15 feet from the principal control location of the attendant and not more than 100 feet from the furthest self-service dispensing device. Use of the emergency controls, including the main power shutoff switch or switches, to control the dispensing devices in other than an emergency situation is prohibited.

(d) *Operating instructions.* Operating instructions shall be conspicuously posted on either the dispensing device island or each dispensing device.

(e) *Emergency procedures and instructions.* A list of emergency procedures and instructions shall be conspicuously posted in the immediate vicinity of the attendant's principal control location.

(f) *Vehicle parking.* Designated parking spaces are prohibited within a direct line of sight between the attendant's principal control location and the dispensing devices.

(g) Reserved.

(h) *Communications system.* A two-way voice communications system is required at each dispensing device island. Such communications system shall provide a person dispensing flammable or combustible liquids with "hands-off" direct voice communications with the attendant. The system must operate over a constantly operational open channel or circuit of adequate volume and clarity and also provide "talk" and "listen" capabilities for both the attendant and person dispensing the flammable or combustible liquid.

(i) *Warning sign.* The following warning in at least 1 inch lettering shall be conspicuously posted on each dispensing device island: "WARNING–IT IS UNLAWFUL TO DISPENSE FLAMMABLE OR COMBUSTIBLE LIQUID INTO ANY PORTABLE CONTAINER UNLESS THE CONTAINER IS CONSTRUCTED OF METAL OR IS APPROVED BY THE FIRE MARSHAL."

Source

The provisions of this § 13.115 amended through June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial pages (63498) to (63499).

Cross References

This section cited in 37 Pa. Code § 13.117 (relating to supervision of dispensing).

Notes of Decisions

The provisions of 37 Pa. Code § 13.115(c) do not require that an attendant at a self-service station be located more than 15 feet from the point of dispensing. *Open Pantry Food Marts v. Commonwealth ex rel. Township of Hempfield*, 37 Pa. Commw. Ct. 423 at 426, 391 A.2d 20, 21 (1978).

A township ordinance which totally prohibits self-service stations in areas where other stations are permitted clearly creates a conflict between this regulation and the ordinance and is invalid. *Sears, Roebuck and Co. v. Bensalem Township Board of Supervisors*, 10 Pa.D.&C.3d 52, 55, 59 (1979).

§ 13.116. Delivery nozzles.

(a) Hose nozzle valves of the automatic-closing type for dispensing flammable or combustible liquids into a fuel tank or into an approved container shall be provided and be of an approved type which is manually held open during the dispensing operation except as provided in subsections (b), (c) and (d).

(b) An approved automatic-closing type nozzle with a hold-open latch is permitted on any service station dispensing device accessible to the public if all flammable or combustible liquids are dispensed by the service station attendant.

(c) When combustible liquids–such as diesel fuel–are dispensed at an attended self-service station or from a private dispensing device, such as a key or card controlled device, located at the public service area, the nozzle shall be an approved automatic-closing type with or without a hold-open latch. The use of a hold-open latch in connection with the dispensing of flammable liquids (such as gasoline) at an attended self-service station or from a private dispensing device located at the public service area is prohibited.

(d) Dispensing of flammable or combustible liquids from a dispensing device used exclusively for private dispensing purposes at a location other than at the public service area shall be through an approved automatic-closing type nozzle with or without a hold-open latch.

Source

The provisions of this § 13.116 amended June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial page (63499).

§ 13.117. Supervision of dispensing.

(a) Service stations accessible to the public shall have an attendant or supervisor on duty whenever the station is open for business. Dispensing operations shall be performed only by the attendants or supervisors except at stations approved for operation in accordance with § 13.115 (relating to attended self-service stations).

(b) Dispensing of flammable or combustible liquids at locations where the dispensing device is not open to the public does not require an attendant or supervisor. Such locations may include card or key dispensing devices.

Source

The provisions of this § 13.117 amended through June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial pages (63499) to (63500).

§ 13.118. Marine service stations.

(a) Pumps, other than those which are integral with approved dispensing devices, and all tanks supplying class I liquids at marine service stations shall be located on shore, or on a pier of solid-fill type. Approved dispensing devices with or without integral pumps may be located on shore, piers of solid-fill type, open piers, wharves, or floating docks.

(b) Tanks and pumps supplying class II or class III liquids at marine service stations may be located on shore, on a pier of solid-fill type or on open piers, wharves, or floating docks. Tanks which are located other than on shore or on piers of the solid-fill type shall be limited to 660 gallons aggregate capacity. Pumps not a part of the dispensing device shall be located adjacent to the tanks.

(c) Class I liquids shall not be dispensed into the fuel tanks of marine craft except by means of a hose equipped with a self-closing nozzle, and with a valve which shall be held open by manual control while making a delivery.

(d) Class II or class III liquids may be dispensed into the fuel tanks of a marine craft from tank trucks by gravity or power operated pumps through a hose equipped with a self-closing nozzle.

(e) Pipe lines attached to piers, wharves, or floating docks shall be protected against physical damage. A readily

accessible valve to shut off the supply from shore shall be provided in each pipe line at or near the approach to the pier, wharf, or floating dock.

(f) Pipe lines to floating docks shall be designed and installed so as to make appropriate provision for changes in water level or tide. Connections from the fixed portion of the installation to the floating unit shall provide necessary product control, flexibility, and protection from physical damage.

Source

The provisions of this § 13.118 amended June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial page (63500).

§ 13.118a. Aircraft service stations.

The installation and design of aviation fuel storage tanks, pumps, piping and associated equipment (including fire extinguishing equipment) used to service aircraft from fixed equipment shall meet approved standards.

Source

The provisions of this § 13.118a adopted June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131.

§ 13.119. Drainage and waste disposal.

Provisions shall be made in the area where class I liquids may be spilled to prevent liquids from flowing into the interior of any buildings. Such provisions may be by grading, raising doorsills, or other effective means. Crankcase drainings and flammable or combustible liquids shall not be dumped into sewers, streams or on adjoining property, but shall be stored in containers equipped with pressure and vacuum relief with flame arresters or aboveground tanks outside of any building, or in underground tanks, until removed from the premises. Containers shall not exceed an aggregate capacity of 60 gallons. Aboveground tanks shall not exceed an aggregate capacity of 300 gallons.

Source

The provisions of this § 13.119 amended June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial pages (63500) to (63501).

§ 13.120. Electrical equipment.

(a) All electrical equipment shall conform to and be installed in accordance with applicable provisions of the National Electrical Code (NFPA 70-1981), except that dispensing equipment handling class II liquids shall be installed in the same manner as dispensing equipment handling class I liquids.

(b) Reserved.

Source

The provisions of this § 13.120 amended June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial pages (63501), and (5157) to (5158).

§ 13.121. Safety rules.

(a) There shall be no smoking on the driveway of service stations in the areas used for fueling motor vehicles, dispensing flammable antifreeze, or the receipt of products by tank truck, nor in those portions of the building used for servicing automobiles, tractors, or internal combustion engines. Conspicuous signs prohibiting smoking shall be posted within the sight of the customer being served. The motors of all vehicles being fueled shall be shut off during the fueling operation.

(b) Use of class I liquids at service stations and garages as degreasing or cleaning agents shall be prohibited.

§ 13.122. Fire extinguishers.

There shall be at least one readily accessible and properly maintained 10BC fire extinguisher at each service station. The fire marshal may require additional approved fire extinguishers if warranted.

Source

The provisions of this § 13.122 amended June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial page (5158).

CENTRALIZED OIL DISTRIBUTION SYSTEMS

§ 13.131. Scope and application.

A centralized oil distribution system shall be installed, maintained and operated in a manner approved by the fire marshall.

Source

The provisions of this § 13.131 amended June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial page (5159).

Cross References

This section cited in 37 Pa. Code § 13.161 (relating to general provisions).

§ 13.132. [Reserved].

Source

The provisions of this § 13.132 reserved June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial page (5160).

COMMERCIAL AND INDUSTRIAL ESTABLISHMENTS

§ 13.141. Scope and application.

(a) [Reserved].

(b) Outside storage, handling, and use of flammable or combustible liquids shall conform to the applicable provisions set forth in §§ 13.1–13.11, 13.21–13.26, and 13.41–13.46 (relating to outside and aboveground storage; underground storage; and closed containers, respectively).

(c) *Fire Control–outside storage.* Fire control equipment such as, but not limited to, portable fire extinguishers and control equipment, water in sufficient volume and pressure to accommodate water hose streams and foam producing equipment, and the like, and special equipment utilizing foam, inert gas or dry chemicals shall be provided in a manner approved by the fire marshal.

Source

The provisions of this § 13.141 amended through October 5, 1984, effective October 6, 1984, 14 Pa.B. 3624. Immediately preceding text appears at serial page (90136).

Cross References

This section cited in 37 Pa. Code § 13.32 (relating to class I liquids).

§ 13.142. [Reserved].

Source

The provisions of this § 13.142 reserved June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial pages (5161) to (5162).

§ 13.143. [Reserved].

Source

The provisions of this § 13.143 reserved June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial page (5162).

§ 13.144. [Reserved].

Source

The provisions of this § 13.144 reserved June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial page (5163).

§ 13.145. [Reserved].

Source

The provisions of this § 13.145 reserved June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial page (5163).

§ 13.146. [Reserved].

Source

The provisions of this § 13.146 reserved June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial pages (5163) to (5164).

§ 13.147. [Reserved].

Source

The provisions of this § 13.147 reserved June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial page (5164).

§ 13.148. [Reserved].

Source

The provisions of this § 13.148 reserved June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial pages (5164).

PROCESSING PLANTS

§ 13.151. Scope and application.

(a) *Outside storage*. Outside storage, handling, and use of flammable or combustible liquids shall conform to §§ 13.1–13.11, 13.21–13.26, and 13.41–13.46 (relating to outside and aboveground storage; underground storage; and closed containers, respectively).

(b) *Fire control–outside storage*. Fire control equipment such as, but not limited to, portable fire extinguishers and control equipment, water in sufficient volume and pressure to accommodate water hose streams and foam producing equipment, and the like and special equipment utilizing foam, inert gas or dry chemicals shall be provided in the manner approved by the fire marshal.

Source

The provisions of this § 13.151 amended June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial page (5165).

Cross References

This section cited in 37 Pa. Code § 13.32 (relating to class I liquids).

§ 13.152. [Reserved].

Source

The provisions of this § 13.152 reserved June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial pages (5165) to (5166).

§ 13.153. [Reserved].

Source

The provisions of this § 13.153 reserved June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial pages (5166).

§ 13.154. [Reserved].

Source

The provisions of this § 13.154 reserved June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial pages (5166) to (5167).

§ 13.155. [Reserved].

Source

The provisions of this § 13.155 reserved June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial page (5167).

§ 13.156. [Reserved].

Source

The provisions of this § 13.156 reserved June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial page (5167).

HEATING AND POWER DEVICES

§ 13.161. General provisions.

(a) *Storage.* Flammable or combustible liquids supplying heating or power devices by means of piping shall be stored in accordance with §§ 13.1–13.11, 13.21–13.26, 13.31–13.38, 13.51–13.58 and 13.131 (relating to outside and aboveground storage; underground storage; inside building storage; piping, valves, and fittings; and centralized oil distribution systems, respectively).

(b) *Approval.* Approval shall not be required for domestic fuel oil heating systems where the capacity of any individual supply tank does not exceed 3,000 gallons.

(c) *Materials.* Materials for piping (including vents and fills), valves and fittings used with supply tanks, shall conform with § 13.53 (relating to materials). The aboveground use of any material, such as plastic, that softens on fire exposure is prohibited.

(d) Where the installation of a supply tank is made in such a manner that the supply piping drops below the top of the tank, adequate provisions to prevent siphoning shall be provided.

Source

The provisions of this § 13.161 amended June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial page (5168).

Cross References

This section cited in 37 Pa. Code § 11.3 (relating to scope of approval required); 37 Pa. Code § 13.44 (relating to manner and limitations of storage); and 37 Pa. Code § 14.8 (relating to fuel tanks for heating and power devices).

§ 13.162. Oil burners.

Heating and other devices using oil burners, including all accessories thereto, shall be installed, maintained, and operated in accordance with approved standards.

Source

The provisions of this § 13.162 amended June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial page (5168).

§ 13.163. Fire control.

Approved fire-extinguishers may be required by the fire marshal.

Source

The provisions of this § 13.163 amended June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial page (5168).

Subchapter C. SPECIAL PROVISIONS AND PROCEDURES

PROTECTION OF TANKS IN FLOOD AREAS

Sec.

13.211. Scope.
13.212. Aboveground tanks.
13.213. Underground tanks.
13.214. Water Loading.
13.215. Operating instructions.
13.216. [Reserved].
13.217. [Reserved].

PROCEDURE FOR REMOVAL OR ABANDONMENT OF TANKS

Sec.

13.221. Tanks temporarily out of service.
13.222. Underground tanks.
13.223. [Reserved].
13.224. [Reserved].

13.225. [Reserved].
13.226. Aboveground tanks.

PROTECTION OF TANKS IN FLOOD AREAS

§ 13.211. Scope.

The provisions of §§ 13.211–13.217 (relating to protection of tanks in flood areas) apply for the protection of tanks containing flammable or combustible liquids that may become buoyant due to a rise in the level of the water table or due to their location in an area that may be subjected to flooding.

Cross References

This section cited in 37 Pa. Code § 13.4 (relating to anchorage); and 37 Pa. Code § 13.23 (relating to anchorage).

§ 13.212. Aboveground tanks.

(a) Each vertical tank shall be located so that its top extends above the maximum flood stage by at least 30% of its allowable storage capacity.

(b) Horizontal tanks located so that more than 70% of the tank's storage capacity will be submerged at the established flood stage shall be anchored; attached to a foundation of concrete or of steel and concrete of sufficient weight to provide adequate load for the tank when filled with flammable or combustible liquid and submerged by flood water to the established flood stage; or adequately secured from floating by other means. Tank vents or other openings which are not liquidtight shall be extended above maximum flood stage water level.

(c) A dependable water supply shall be available for filling an empty or partially filled tank, except that where filling the tank with water is impractical or hazardous because of the tank's contents, tanks shall be protected by other means against movement or collapse.

(d) Spherical or spheroid tanks shall be protected by applicable methods as specified for either vertical or horizontal tanks.

Source

The provisions of this § 13.212 amended June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial pages (5169) to (5170).

Cross References

This section cited in 37 Pa. Code § 13.4 (relating to anchorage); 37 Pa. Code § 13.23 (relating to anchorage); and 37 Pa. Code § 13.211 (relating to scope).

§ 13.213. Underground tanks.

(a) At locations where there is an ample and dependable water supply available, underground tanks containing flammable or combustible liquids, so placed that more than 70% of their storage capacity will be submerged at the maximum flood stage, shall be so anchored, weighted or secured as to prevent movement when filled or loaded with water and submerged by flood water to the established flood stage. Tank vents or other openings which are not liquid tight shall be extended above maximum flood stage water level.

(b) At locations where there is no ample and dependable water supply or where filling of underground tanks with water is impractical because of the contents, each tank shall be safeguarded against movement when empty, and submerged by high ground water or flood water by anchoring or by securing by other means. Each such tank shall be so constructed and installed that it will safely resist external pressures if submerged.

Source

The provisions of this § 13.213 amended June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial pages (5170) to (5171).

Cross References

This section cited in 37 Pa. Code § 13.4 (relating to anchorage); 37 Pa. Code § 13.23 (relating to anchorage); and 37 Pa. Code § 13.211 (relating to scope).

§ 13.214. Water loading.

The filling of a tank to be protected by water loading shall be started as soon as flood waters are predicted to reach a dangerous flood stage. Where independently fueled water pumps are relied upon, sufficient fuel shall be available at all times to permit continuing operations until all tanks are filled. Tank valves shall be closed and locked in closed position when water loading has been completed.

Source

The provisions of this § 13.214 amended June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial page (5171).

Cross References

Section 13.161(b) (relating to general provisions) does not require approval for tanks supplying fuel to heating or power devices where the capacity of an individual tank does not exceed 3,000 gallons.

§ 13.215. Operating instructions.

(a) Operating instructions or procedures to be followed in a flood emergency shall be readily available.

(b) Personnel relied upon to carry out flood emergency procedures shall be informed of the location and operation of valves and other equipment necessary to effect the intent of these requirements.

Source

The provisions of this § 13.215 amended June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial pages (5171) to (5172).

Cross References

This section cited in 37 Pa. Code § 13.4 (relating to anchorage); 37 Pa. Code § 13.23 (relating to anchorage); and 37 Pa. Code § 13.211 (relating to scope).

§ 13.216. [Reserved].

Source

The provisions of this § 13.216 reserved June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial page (5172).

Cross References

This section cited in 37 Pa. Code § 13.4 (relating to anchorage); 37 Pa. Code § 13.23 (relating to anchorage); and 37 Pa. Code § 13.211 (relating to scope).

§ 13.217. [Reserved].

Source

The provisions of this § 13.217 reserved June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial pages (5172) to (5173).

Cross References

This section cited in 37 Pa. Code § 13.4 (relating to anchorage); 37 Pa. Code § 13.23 (relating to anchorage); and 37 Pa. Code § 13.211 (relating to scope).

PROCEDURE FOR REMOVAL OR ABANDONMENT OF TANKS

§ 13.221. Tanks temporarily out of service.

(a) If an underground tank is taken out of service for a period of 3 months or less, the following procedures apply:

(1) Remove all liquid that can be pumped out with the service pump.

(2) Cap the fill line, gauge opening, and pump suction, and secure against tampering.

(3) Leave the vent line open.

(b) If an underground tank is taken out of service for a period exceeding 3 months, the fire marshal shall be notified and the following procedures apply:

(1) Comply with the requirements of subsection (a), except that all flammable or combustible liquids shall be removed and the tank completely filled with water. Note that the owner is responsible for ensuring that the tank remains completely filled with water until such time as it is returned to service, removed or abandoned in place.

(2) Comply with § 13.27 (relating to leaking underground tanks) in cases of tanks that are leaking or incapable of maintaining full capacity of water.

Source

The provisions of this § 13.221 amended June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial page (5173).

Cross References

This section cited in 37 Pa. Code § 13.222 (relating to underground tanks).

§ 13.222. Underground tanks.

(a) An underground tank shall be deemed abandoned for failure to comply with the provisions of § 13.221 (relating to tanks temporarily out of service). If a tank is to be abandoned, the fire marshal shall be notified and he may order its removal or abandonment in place. The following procedures apply when removing such tank:

(1) Remove all liquid from tank and connecting lines.

(2) Disconnect the suction, inlet, gauge, and vent lines. Remove sections of connecting lines that are not to be further used and cap or plug open ends.

(3) Cap or plug tank inlets and outlets, and keep them capped or plugged during transportation of the tank.

(4) After removal, the tank shall be gas freed on the premises if it may be done safely at that location or shall be transported to an area not accessible to the public and the gas freeing completed at that location.

(5) If a tank is to be disposed of as junk, it shall be retested for flammable vapors and rendered gas free. After junking and before releasing to junk dealer, the tank shall be punctured with holes to render it unfit for further use.

(b) The following procedures shall be followed if a tank is to be abandoned in place:

(1) Remove all liquid from the tank and connecting lines.

(2) Disconnect the suction, inlet gauge, and vent lines.

(3) Fill the tank and remaining stubs completely with a nonshrinking inert solid material and cap all tank inlets and outlets.

Source

The provisions of this § 13.222 amended June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial pages (5173) to (5174).

Cross References

This section cited in 37 Pa. Code § 13.27 (relating to leaking underground tanks).

§ 13.223. [Reserved].

Source

The provisions of this § 13.223 reserved June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial page (5174).

§ 13.224. [Reserved].

Source

The provisions of this § 13.224 reserved June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial page (5174).

§ 13.225. [Reserved].

Source

The provisions of this § 13.225 reserved June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial pages (5174) and (28683).

§ 13.226. Aboveground tanks.

The fire marshal shall be notified when an aboveground tank is to be abandoned. Additionally, the tank shall be emptied of all product, cleaned and gas freed. All tank valves and piping shall be secured. The fire marshal may require dismantling of the tank.

Source

The provisions of this § 13.226 amended June 22, 1984, effective June 18, 1984, 14 Pa.B. 2131. Immediately preceding text appears at serial page (28683).

CHAPTER 14. VAULTS FOR THE STORAGE OF FLAMMABLE AND COMBUSTIBLE LIQUIDS–STATEMENT OF POLICY

Sec.

14.1. Installation of vaults for the storage of flammable and combustible liquids.
14.2. Physical requirements of vaults.
14.3. Piping and ancillary equipment.
14.4. Corrosion protection.
14.5. Tank filling operations.
14.6. Installation and use of aboveground tanks for storage and dispensing of Class I and Class II motor fuels.
14.7. Dispensing of Class I and Class II liquids from tank vehicles.
14.8. Fuel tanks for heating and power devices.

Authority

The provisions of this Chapter 14 issued under section 1 of the act of April 27, 1927 (P. L. 450, No. 291) (35 P. S. § 1181), unless otherwise noted.

Source

The provisions of this Chapter 14 adopted October 29, 1993, effective October 30, 1993, 23 Pa.B. 5137, unless otherwise noted.

§ 14.1. Installation of vaults for the storage of flammable and combustible liquids.

The State Police Fire Marshal may permit the installation of vaults for storing flammable and combustible liquids for retail and nonretail distribution if the minimum standards in §§ 14.2–14.6 are met.

§ 14.2. Physical requirements of vaults.

(a) Vaults for retail distribution shall be constructed below grade. Vaults for nonretail distribution may be constructed either above or below grade.

(b) The vault shall completely enclose each tank. There may not be openings in the vault enclosure except those necessary for access to, inspection of, and filling, emptying and venting of the tank. The walls and floor of the vault shall be constructed of reinforced concrete at least 6 inches thick. The top of an above grade vault shall be constructed of noncombustible material constructed to be weaker than the walls to assure that in the event of an explosion inside the vault, the thrust of the explosion will be inside the vault. The top, floor and tank foundation shall be designed to withstand the anticipated loading. The walls and floor of a vault installed below grade shall be designed to withstand anticipated soil and hydrostatic loading. The vault shall be substantially liquid tight and there may be no backfill around the tank. There shall be sufficient space between the tank and the vault to allow for inspection of the tank and appurtenances.

(c) Each vault and its tank shall be suitably anchored to withstand uplifting by groundwater or flooding, including when the tank is empty.

(d) The vault shall be designed to be wind and earthquake resistant, in accordance with sound engineering practice. The vault shall be resistant to damage from the impact of a motor vehicle, or suitable collision barriers shall be provided.

(e) Each tank shall be in its own vault. Adjacent vaults may share a common wall if the top of each vault is constructed to conform to the requirements of subsection (b). The top of each vault shall be constructed of noncombustible material constructed to be weaker than the walls to assure that in the event of an explosion inside the vault, the thrust of the

explosion will be directed upward before a significantly high pressure can develop inside the vault.

(f) Connections shall be provided to permit venting of each vault to dilute, disperse and remove vapors prior to personnel entering the vault.

(g) Vaults shall be provided with continuous ventilation at a rate of not less than 1 cubic foot per minute per square foot of floor area, but not less than 150 cubic feet per minute. Failure of the exhaust air flow shall automatically shut down the dispensing system. The exhaust system shall be designed to provide air movement across all parts of the vault floor. Supply and exhaust ducts shall extend to within 3 inches, but not more than 12 inches of the floor. The exhaust system shall be installed in accordance with NFPA 91, Standard For Exhaust Systems For Air Conveying of Materials. A means shall be provided to automatically detect flammable vapors and to automatically shut down the dispensing system upon detection of the flammable vapors in the exhaust duct at a concentration of 25% of the lower flammable limit.

(h) Each vault shall be equipped with a detection system capable of detecting liquids, including water, and of activating an alarm upon detection.

(i) A means to recover liquid from the vault shall be provided. If a pump is used to meet this requirement, the pump may not be permanently installed in the vault. Electric powered portable pumps used to recover liquid shall be suitable for use in Class I, Division I locations, as defined in NFPA 70, National Electric Code.

(j) Vent pipes that are provided for normal tank venting shall extend at least 12 feet above ground level.

(k) Emergency vents shall be vapor tight and shall be permitted to discharge inside the vault. Long-bolt manhole covers will not be permitted for this purpose.

(l) Each vault shall be provided with a means for personnel entry. At each entry point, a warning sign indicating the need for procedures for safe entry into confined spaces shall be posted. Employes and other persons who anticipate entering the vault shall be made aware of and each entry shall conform to applicable Federal regulations regarding confined space entry. Each entry point shall be secured against unauthorized entry and vandalism.

(m) Each vault shall be provided with a suitable means to admit a fire suppression agent. The connection shall be at least 25 feet from the nearest wall of the vault and shall be compatible with standard couplings used by fire departments in that area.

(n) The interior of a vault shall be designated a Class I, Division I location as defined in NFPA 70, National Electric Code.

(o) Each vault shall be equipped with adequate lighting. The lighting shall be explosion proof and conform with NFPA 70, National Electric Code.

(p) Tanks within vaults shall be approved for aboveground use and shall have been tested in accordance with UL 142, Standard for Steel Aboveground Tanks For Flammable Or Combustible Liquids, or an equivalent test procedure. Individual tanks shall be limited to a maximum capacity of 12,000 gallons.

(q) Tanks within above grade vaults shall be at least 25 feet from buildings on the same property, 25 feet from the nearest side of a public way and 50 feet from a property line that may be built upon. Tanks within below grade vaults shall be at least 5 feet from buildings on the same property, 5 feet from the nearest side of a public way and 5 feet from property lines.

§ 14.3. Piping and ancillary equipment.

(a) A means for determining the liquid level in each tank shall be provided and this means shall be accessible to the delivery operator. A means to sound an audible alarm when the liquid level in the tank reaches 90% of capacity shall be provided. A means either to automatically stop the flow of liquid into the tank when the liquid level in the tank reaches 98% of capacity or to restrict the flow of liquid into the tank to a maximum 2.5 gpm when the liquid in the tank reaches 95% capacity shall also be provided. These provisions may not restrict or interfere with the proper operation of either the normal vent or the emergency vent.

(b) Fuel may not be dispensed from the tank by either gravity flow or pressurization of the tank. A means to prevent the release of liquid by siphon flow shall be provided.

(c) If the tank is at an elevation that produces a gravity head on the dispensing device, the tank outlet shall be equipped with a device that will prevent gravity flow from the tank to the dispenser, such as a normally closed solenoid valve. This device shall be located adjacent to and downstream of the outlet valve specified by 2-3.8.1 of NFPA 30, Flammable and Combustible Liquids Code. The device shall be installed and adjusted so that liquid cannot flow by gravity from the tank to the dispenser in the event of failure of the piping or hose when the dispenser is not in use.

(d) If a submersible pump system is used, a listed emergency shutoff valve shall be installed, as required by 4-3.6 of NFPA 30A, Automotive and Marine Service Station Code.

(e) If a suction pump-type dispensing device is used, a listed, vacuum-actuated shutoff valve, with a shear section, or equivalent-type valve shall be installed directly under each dispensing device. Tanks installed in below grade vaults are not required to comply with this section.

(f) Shutoff and check valves shall be equipped with a pressure-relieving device that will relieve the pressure generated by thermal expansion back to the tank.

(g) Piping shall be routed so that exposure to physical damage is minimized.

§ 14.4. Corrosion protection.

Any portion of a tank or its piping system that is in contact with the soil shall be protected from corrosion in accordance with sound engineering practice.

§ 14.5. Tank filling operations.

Delivery operations shall comply with NFPA 385, Standard For Tank Vehicles For Flammable And Combustible Liquids, as well as the following requirements:

(1) The delivery vehicle shall be separated from an aboveground tank by at least 25 feet, except that no minimum separation distance is required for tanks that are filled by gravity.

(2) Tank filling may not begin until the delivery operator has determined tank ullage–available capacity.

(3) Tanks shall be filled through a liquid-tight connection. If the tank is filled by means of fixed piping, either a check valve and shutoff valve with a quick-connect coupling or a check valve with a dry-break coupling shall be installed in the piping where connection and disconnection is made between the tank and the delivery vehicle. This device shall be protected from tampering and physical damage.

§ 14.6. Installation and use of aboveground tanks for storage and dispensing of Class I and Class II motor fuels.

The Pennsylvania State Police Fire Marshal may permit a maximum storage of 12,000 gallons of Class I and 12,000 gallons of Class II motor fuels aboveground for nonretail distribution. Until revisions to this subpart are accomplished, the following requirements shall be met to obtain a fire/explosion safety approval. Each application is reviewed on a site specific basis and additional provisions may be applied.

(1) Tanks storing Class I motor fuel for dispensing into registered motor vehicles shall have a minimum 2-hour fire rating as described in UL 2085, Outline Of Investigation For Insulated Aboveground Tanks For Flammable and Combustible Liquids, or equivalent test procedure.

(2) The tank shall be located at least 50 feet from buildings and 100 feet from property lines; except that if a 2-hour fire rated tank is utilized, the site distances may be reduced by half.

(3) Bollards shall be installed to protect against collision. Six-inch steel pipes filled with concrete, 3 feet in

ground, 4 feet high, 4 feet apart and at least 2 feet from the shell of the tank shall be used. Barriers providing equal or greater protection will be acceptable with the approval of the Pennsylvania State Police Fire Marshal.

(4) Secondary containment capable of handling 110% of the capacity of the tank shall be provided.

(5) A clearly labeled emergency power disconnect switch shall be located not less than 20 nor more than 100 feet from the fuel dispenser.

(6) Warning signs stating “NO SMOKING” and “STOP MOTOR” shall be conspicuously posted in the dispensing area.

(7) Each tank shall be properly placarded to identify its contents and have a “NO SMOKING” sign displayed.

(8) The tank shall be set on a suitable foundation constructed in conformance with the tank manufacturers recommendations and using good engineering practices.

(9) A suitable fire extinguisher of at least 20 B:C rating shall be accessible. Depending on the type and amount of fuel stored, additional fire extinguishment measures may be required.

(10) Suitable security measures including, fencing or lighting, may be required, if deemed necessary under the circumstances to prevent tampering or vandalism.

§ 14.7. Dispensing of Class I and Class II liquids from tank vehicles.

Section 13.105(f) (relating to loading and unloading) does not prohibit the dispensing of Class I and Class II liquids in the open from a tank vehicle to motor vehicles located at commercial, industrial, governmental or manufacturing establishments and which are intended for fueling vehicles used in connection with their business. The tank vehicle and operation shall be conducted in compliance with Federal and State Departments of Transportation regulations. Approval is not required for operations under this section.

§ 14.8. Fuel tanks for heating and power devices.

Section 13.161(b) (relating to heating and power devices, general provisions) shall not be construed to require approval for tanks supplying fuel to heating or power devices where the capacity of any individual tank does not exceed 3,000 gallons.