

**CHAPTER 73. STANDARDS FOR ONLOT SEWAGE  
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**Authority**

The provisions of this Chapter 73 issued under section 1920-A of The Administrative Code of 1929 (71 P. S. § 510-20); sections 5 and 402 of The Clean Streams Law (35 P. S. §§ 691.5 and 691.402); and section 9 of the Pennsylvania Sewage Facilities Act (35 P. S. § 750.9), unless otherwise noted.

**Source**

The provisions of this Chapter 73 amended through January 21, 1983, effective January 22, 1983, 13 Pa.B. 508, unless otherwise noted.

**Notes of Decisions**

This chapter applies only to subsurface absorption areas or retention in holding tanks and thus is inapplicable to the proposed above ground spray irrigation system. *Haycock Township v. Department of Environmental Resources*, 530 A.2d 514 (Pa. Cmwlth. 1987); appeal denied 544 A.2d 1343 (Pa. 1988).

**Cross References**

This chapter cited in 6 Pa. Code § 21.27 (relating to domiciliary care home certification and recertification standards); 7 Pa. Code § 49.45 (relating to sewage); 7 Pa. Code § 78.73 (relating to sewage disposal); 7 Pa. Code § 82.10 (relating to sewage disposal); 25 Pa. Code § 71.21 (relating to content of official plans); 25 Pa. Code § 71.62 (relating to individual and community onlot sewage systems); 25 Pa. Code § 71.73 (relating to sewage management programs for sewage facilities permitted by local agencies); 25 Pa. Code § 72.2 (relating to scope); 25 Pa. Code § 72.21 (relating to general); 25 Pa. Code § 72.33 (relating to well isolation distance exemption); 25 Pa. Code § 171.5 (relating to sewage disposal); 28 Pa. Code § 18.5 (relating to sewage disposal); 28 Pa. Code § 19.6 (relating to sewage disposal); and 28 Pa. Code § 20.22 (relating to sewer connection); 34 Pa. Code § 403.1 (relating to scope); and 34 Pa. Code § 403.21 (relating to Uniform Construction Code).

**GENERAL**

**§ 73.1. Definitions.**

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

*Absorption area*—A component of an individual or community sewage system where liquid from a treatment tank seeps into the soil; it consists of an aggregate-filled area containing piping for the distribution of liquid and the soil or sand/soil combination located beneath the aggregate.

*Act*—The Pennsylvania Sewage Facilities Act (35 P. S. §§ 750.1—750.20).

*Aggregate*—Coarse material manufactured from stone, gravel or slag, having Type B characteristics as described in Department of Transportation specifications, Form 408, section 703.3, Table B and uniform size and grading equivalent to American Association of State Highway and Transportation Officials No. 57, as described in Form 408, section 703.3, 2 Table C.

*Agricultural areas*—Areas used primarily for the production of crops and where the soil is without vegetative cover during certain periods of the year.

*Alternate sewage system*—A method of demonstrated onlot sewage treatment and disposal not described in this part.

*Bonded disposal system*—An individual sewage system located on a single lot serving a single family residence, where soil mottling is within 20 inches of the mineral soil surface, the installation, operation and replacement of which is guaranteed by the property owner.

*Building sewer*—Piping carrying liquid wastes from a building to the treatment tank or holding tank.

*Buried sand filter*—A system of piping, sand media, aggregate and collection piping in a buried liner used for the intermittent filtration and biochemical treatment of sewage.

*Clean Streams Law*—The Clean Streams Law (35 P. S. §§ 691.1—691.1001).

*Conventional sewage system*—A system employing the use of demonstrated onlot sewage treatment and disposal technology in a manner specifically recognized by this chapter. The term does not include alternate or experimental sewage systems.

*Dosing pump*—The pump housed in a dosing tank which provides a measured volume of sewage effluent to the pressurized distribution system in an absorption area.

*Experimental sewage system*—A method of onlot sewage treatment and disposal not described in this title which is proposed for the purpose of testing and observation.

*Filter tank*—The tank housing the piping and sand of the free access sand filter.

*Forested areas*—Areas where the predominant vegetative cover is comprised of trees with a closed canopy.

*Free access sand filter*—An accessible system of tanks, dose piping, sand media, aggregate and collection piping used for the intermittent filtration and biochemical treatment of sewage.

*Geotextile*—Material consisting of mesh polypropylene, polyester, nylon or similar material, used to prevent migration of fine aggregate into coarser aggregate.

*Grassed area*—An area where the predominant vegetative cover is comprised of grasses, bushes or trees not forming a closed canopy.

*Individual residential spray irrigation system*—An individual sewage system which serves a single dwelling and which treats and disposes of sewage using a system of piping, treatment tanks and soil renovation through spray irrigation.

*Individual sewage system*—A system of piping, tanks or other facilities serving a single lot and collecting and disposing of sewage in whole or in part into the soil or into waters of this Commonwealth or by means of conveyance to another site for final disposal.

*Industrial waste*—A liquid, gaseous, radioactive, solid or other substance, which is not sewage, resulting from manufacturing or industry or other plant or works and mine drainage, silt, coal mine solids, rock, debris, dirt and clay from coal mines, coal collieries, breakers or other coal processing operations. The term includes substances whether or not generally characterized as waste.

*Lift pump*—A submersible pump used to convey effluent to the sand filter and from the sand filter to the chlorine/retention tank.

*Municipality*—A city, incorporated town, township, borough or home rule municipality other than a county.

*NSF*—National Sanitation Foundation.

*Official plan*—A comprehensive plan for the provision of adequate sewage systems adopted by a municipality possessing authority over the provision of the systems and submitted to and approved by the Department as provided by the act and Chapter 71 (relating to administration of sewage facilities program).

*Person*—The term includes an individual; association; public or private corporation for-profit or not-for-profit; partnership; firm; trust; estate; department; board; bureau or agency of the United States or the Commonwealth; political subdivision; municipality; district; authority; or other legal entity which is recognized by law as the subject of rights and duties. The term includes the members of an association, partnership or firm and the officers of a local agency or municipal, public or private corporation for-profit or not-for-profit.

*Qualified registered professional engineer*—A person registered to practice engineering in this Commonwealth who has experience in the characterization, classification, mapping and interpretation of soils as they relate to the function of onlot sewage disposal systems.

*Qualified registered professional geologist*—A person registered to practice geology in this Commonwealth who has experience in the characterization, classification, mapping and interpretation of soils as they relate to the function of onlot sewage disposal systems.

*Qualified soil scientist*—A person certified as a sewage enforcement officer and who has documented 2 years' experience in the characterization, classification, mapping and interpretation of soils as they relate to the function of onlot sewage disposal systems and either a Bachelor of Science Degree in soils science from an accredited college or university or certification by the American Registry of Certified Professionals in Agronomy, Crops and Soils.

*Retaining tank*—A watertight receptacle which receives and retains sewage and is designed and constructed to facilitate ultimate disposal of the sewage at another site. The term includes the following:

- (i) *Chemical toilet*. A permanent or portable nonflushing toilet using chemical treatment in the retaining tank for odor control.
- (ii) *Holding tank*. A tank, whether permanent or temporary, to which sewage is conveyed by a water-carrying system.
- (iii) *Privy*. A tank designed to receive sewage where water under pressure is not available.
- (iv) *Incinerating toilet*. A device capable of reducing waste materials to ashes.
- (v) *Composting toilet*. A device for holding and processing human and organic kitchen waste employing the process of biological degradation through the action of microorganisms to produce a stable, humus-like material.
- (vi) *Recycling toilet*. A device in which the flushing medium is restored to a condition suitable for reuse in flushing.

*Sewage*—A substance that contains the waste products or excrement or other discharge from the bodies of human beings or animals; a substance harmful to the public health, to animal or aquatic life or to the use of water for domestic water supply or for recreation; or a substance which constitutes pollution under The Clean Streams Law.

*Sewage enforcement officer*—An official of the local agency who reviews permit applications and sewage facilities planning modules and issues permits as authorized by the act and conducts the investigations and inspections that are necessary to implement the act and regulations thereunder.

*Sewage facilities*—A system of sewage collection, conveyance, treatment and disposal which will prevent the discharge of untreated or inadequately treated sewage or other waste into waters of this Commonwealth or otherwise provide for the safe and sanitary treatment and disposal of sewage or other waste. The term includes:

- (i) *Individual sewage system*—A system of piping, tanks or other facilities serving a single lot and collecting and disposing of sewage in whole or in part into the soil or into waters of this Commonwealth or by means of conveyance to another site for final disposal.
  - (A) *Individual onlot sewage system*—An individual sewage system which uses a system of piping, tanks or other facilities for collecting, treating or disposing of sewage into a soil absorption area or spray field or by retention in a retaining tank.
  - (B) *Individual sewerage system*—An individual sewage system which uses a method of sewage collection, conveyance, treatment and disposal other than renovation in a soil absorption area, or retention in a retaining tank.

(ii) *Community sewage system*—A sewage facility, whether publicly or privately owned, for the collection of sewage from two or more lots, or two or more equivalent dwelling units and the treatment or disposal, or both, of the sewage on one or more of the lots or at another site.

(A) *Community onlot sewage system*—A community sewage system which uses a system of piping, tanks or other facilities for collecting, treating and disposing of sewage into a soil absorption area or retaining tank.

(B) *Community sewerage system*—A publicly or privately owned community sewage system which uses a method of sewage collection, conveyance, treatment and disposal other than renovation in a soil absorption area, or retention in a retaining tank.

*Small flow treatment facility*—An individual or community sewerage system designed to adequately treat sewage flows not greater than 2,000 gpd for final disposal using a stream discharge or other methods approved by the Department.

*Soil horizon*—A layer of soil approximately parallel to the soil surface with characteristics produced by soil-forming processes.

*Soil mottling (redoximorphic features)*—A soil color pattern consisting of patches of different colors or shades of color interspersed with the dominant soil color which results from prolonged saturation of the soil.

*Soil profile*—The collection of soil horizons, including the natural organic layers on the surface.

*Solids retainer*—A deflection device at the outlet tee or baffle of a septic tank designed to deflect buoyed solids from escaping the tank.

*Spray field*—Piping, spray heads and ground surface to the outside edges of the wetted perimeter, used for the application and treatment of the sewage effluent in an individual residential spray irrigation system.

*Treatment tank*—A water-tight tank designed to retain sewage long enough for satisfactory bacterial decomposition of the solids to take place. The term includes the following:

(i) *Septic tank*—A treatment tank that provides for anaerobic decomposition of sewage prior to its discharge to an absorption area.

(ii) *Aerobic sewage treatment tank*—A mechanically aerated treatment tank that provides aerobic biochemical stabilization of sewage prior to its discharge to an absorption area.

*Undisturbed soil*—Soil or soil profile, unaltered by removal or other man-induced changes, except for agricultural activities, that would adversely affect the siting or operation of onlot systems.

*Water of this Commonwealth*—Rivers, streams, creeks, rivulets, impoundments, ditches, water courses, storm sewers, lakes, dammed water, ponds, springs and other bodies or channels of conveyance of surface and underground

water, or any of their parts, whether natural or artificial within or on the boundaries of this Commonwealth.

#### Authority

The provisions of this § 73.1 amended under sections 7.2 and 9 of the Pennsylvania Sewage Facilities Act (35 P. S. §§ 750.7b and 750.9); The Clean Streams Act (35 P. S. §§ 691.1—691.1001); and section 1920-A of The Administrative Code of 1929 (71 P. S. § 510-20).

#### Source

The provisions of this § 73.1 adopted August 2, 1971, effective August 14, 1971, 1 Pa.B. 1649; amended April 26, 1974, effective May 13, 1974, 4 Pa.B. 817; amended August 30, 1974, effective September 16, 1974, 4 Pa.B. 1805; amended January 21, 1983, effective January 22, 1983, 13 Pa.B. 508; amended November 1, 1996, effective November 2, 1996, 26 Pa.B. 5347; amended November 7, 1997, effective November 8, 1997, 27 Pa.B. 5877. Immediately preceding text appears at serial pages (221905) to (221908).

#### Notes of Decisions

##### *Treatment Tank*

A county zoning board's description of a package treatment plant designed for twenty mobile home units, piping effluent 800 feet to the nearest perennial running creek, appears to fit the definition of aerobic sewage treatment tank in 25 Pa. Code § 73.1 (relating to definitions). *Voortman v. Bucks County Zoning Hearing Board*, 343 A.2d 393 (Pa. Cmwlth. 1975).

#### Cross References

This section cited in 25 Pa. Code § 73.161 (relating to general).

### § 73.2. Scope.

This chapter applies to sewage enforcement officers administering the act, as well as to persons installing individual onlot sewage systems or community onlot sewage systems as defined in this chapter.

#### Authority

The provisions of this § 73.2 amended under section 9 of the Pennsylvania Sewage Facilities Act (35 P. S. § 750.9); The Clean Streams Law (35 P. S. §§ 691.1—691.1001); and section 1920-A of The Administrative Code of 1929 (71 P. S. § 510-20).

#### Source

The provisions of this § 73.2 adopted August 2, 1971, effective August 14, 1971, 1 Pa.B. 1649; amended April 26, 1974, effective May 13, 1974, 4 Pa.B. 817; amended August 30, 1974, effective September 16, 1974, 4 Pa.B. 1805; amended January 21, 1983, effective January 22, 1983, 13 Pa.B. 508; amended November 7, 1997, effective November 8, 1997, 27 Pa.B. 5877. Immediately preceding text appears at serial page (221909).



**§ 73.3. Policy.**

(a) A person planning or designing a facility or intending to utilize individual or community sewage systems is advised of the importance of good water conservation practices and the potential value of water conservation, recycle or reuse systems as a means of prolonging the life of the sewage system, as well as ensuring the availability of adequate water supplies in the future.

(b) When considering corrective measures for malfunctioning sewage disposal systems which have been constructed in accordance with this chapter or applicable regulations at the time of construction, the efforts of the local agency or the Department will not be restricted by this chapter. It will be the policy of the Department and local agencies administering this chapter to first consider all individual onlot and community onlot sewage systems described in this chapter, excluding holding tanks, in the correction of existing malfunctions and, when the systems cannot be constructed in accordance with this chapter, to provide the best technical guidance possible in attempting to resolve existing pollution or environmental health problems. When application of best technical guidance results in the absorption area or spray field encroaching on the regulated isolation distance to a well, the proper well abandonment procedure or the relocation of the well should be considered. The requirements of § 72.33 (relating to well distance exemption) may be waived at the discretion of the local agency. This policy will not limit or preclude the use of experimental systems as provided in §§ 73.71 and 73.72 (relating to experimental sewage systems; and alternate sewage systems), small flow treatment systems permitted under the Clean Streams Law or, when no other alternatives are available, holding tanks.

(c) The Department recognizes the existence of technologies related to onlot sewage disposal which are not specifically addressed in this chapter as well as technologies from other disciplines which may be applied to the design or construction of an onlot sewage disposal system. Experimental sewage system permits provide a method for the testing and evaluation of new concepts and technologies applicable to onlot disposal in this Commonwealth. Experimental permits may be limited in number on a Statewide basis. The Department will determine the number of experimental permits that may be issued for a specific experimental technology or design. An experimental onlot sewage disposal system permit shall be required for all technologies, methods, system components, systems and designs the Department deems experimental. Alternate sewage systems provide a classification for innovative and alternative technology which has been developed through the experimental program, by application of existing technologies from other disciplines or through technological advances from other areas of the United States. The alternate sewage system permit will provide a method for utilizing proven technologies within this Commonwealth without constant changes to this chapter. Systems shall be permitted only where it is demon-

strated that the proposed system will protect the public health and prevent pollution of the waters of this Commonwealth.

#### Authority

The provisions of this § 73.3 amended under section 9 of the Pennsylvania Sewage Facilities Act (35 P. S. § 750.9); The Clean Streams Law (35 P. S. §§ 691.1—691.1001); and section 1920-A of The Administrative Code of 1929 (71 P. S. § 510-20).

#### Source

The provisions of this § 73.3 adopted August 2, 1971, effective August 14, 1971, 1 Pa.B. 1649; amended April 26, 1974, effective May 13, 1974, 4 Pa.B. 817; amended August 30, 1974, effective September 16, 1974, 4 Pa.B. 1805; amended January 21, 1983, effective January 22, 1983, 13 Pa.B. 508; amended November 7, 1997, effective November 8, 1997, 27 Pa.B. 5877. Immediately preceding text appears at serial pages (221909) to (221910).

#### Cross References

This section cited in 25 Pa. Code § 72.33 (relating to well isolation distance exemption).

### GENERAL SITE LOCATION AND ABSORPTION AREA REQUIREMENTS

#### § 73.11. General.

(a) No person may install, and no sewage enforcement officer may issue a permit for or approve, a sewage system which violates this chapter.

(b) A structure may not be occupied before the sewage system is finally inspected, approved and covered. Except when the sewage enforcement officer requires a change to the installation schedule because of weather and soil conditions, the permit may be modified with conditions to be established by the local agency to allow use of a septic tank as a temporary holding tank. In these instances, §§ 71.61 and 71.63(b)(1) and (2), (c)(1) and (2), 73.61 and 73.62(b) do not apply. Absorption areas shall be covered by the permittee within 5-calendar days after final inspection and approval to prevent damage.

(c) Liquid wastes, including kitchen and laundry wastes and water softener backwash, shall be discharged to a treatment tank. A sewage system may not discharge untreated or partially treated sewage to the surface of the ground or into the waters of this Commonwealth except as specifically permitted under sections 202 and 207 of the Clean Streams Law (35 P. S. §§ 691.202 and 691.207) and individual residential spray irrigation systems permitted by local agencies under section 7.3 of the act (35 P. S. § 750.7c).

(d) Where additional absorption area is installed to increase the total area of an existing system and flows are generated from a common treatment tank, loading per square foot of the new area and the existing area shall be equal.

(e) Discharge from roof gutters, foundation drainage, floor drains not from sewage generating connections and surface runoff may not be discharged to a treatment tank; nor may the discharges be permitted to flow over an absorption area or spray fields.

(f) The discharge of inadequately disinfected effluent or the discharge of effluent in a manner inconsistent with the system design specifications from an individual residential spray irrigation system shall constitute a nuisance.

#### Authority

The provisions of this § 73.11 amended under section 9 of the Pennsylvania Sewage Facilities Act (35 P. S. § 750.9); The Clean Streams Law (35 P. S. §§ 691.1—691.1001); and section 1920-A of The Administrative Code of 1929 (71 P. S. § 510-20).

#### Source

The provisions of this § 73.11 adopted August 2, 1971, effective August 14, 1971, 1 Pa.B. 1649; amended April 26, 1974, effective May 13, 1974, 4 Pa.B. 817; amended August 30, 1974, effective September 16, 1974, 4 Pa.B. 1805; amended January 21, 1983, effective January 22, 1983, 13 Pa.B. 508; amended January 9, 1987, effective January 10, 1987, 17 Pa.B. 172; amended November 7, 1997, effective November 8, 1997, 27 Pa.B. 5877. Immediately preceding text appears at serial pages (221910) to (221911).

#### Notes of Decisions

For the construction of a sewage disposal system, the provisions of 25 Pa. Code § 73.11(c) (relating to overall requirements) and 25 Pa. Code § 73.71(b)(5) (relating to standard trenches) require at least 6 feet between the soil surface and the seasonal high water table. *Department of Environmental Resources v. Flynn*, 344 A.2d 720 (Pa. Cmwlth. 1975).

A property owner acquired a vested right in a municipal permit, even though it was issued on the basis of a mistake in the seasonal highwater table, where he had exercised due diligence and good faith in attempting to comply with the law and had expended substantial unrecoverable funds and where no appeal had been taken from the issuance of the permit and there was insufficient evidence to prove that public health and safety would be adversely affected by use of the permit. *Department of Environmental Resources v. Flynn*, 344 A.2d 720 (Pa. Cmwlth. 1975).

Testimony as to excavations in nearby lots does not satisfy the applicant's burden of proving what soil conditions exist beneath the proposed excavation and the mere possibility that pollution could result from the installation of the proposed sewage disposal system would be enough to justify the regulations. *Department of Environmental Resources v. Metzger*, 347 A.2d 743 (Pa. Cmwlth. 1975).

The fact that the Department of Environmental Resources tests indicated that the soil suitability was marginal and that the Department of Environmental Resources granted a permit for a proposed experimental sewer system did not place any liability on the Department of Environmental Resources or on the Township when the system malfunctioned. *Londonderry Township v. Geyer*, 537 A.2d 377 (Pa. Cmwlth. 1988).

#### Cross References

This section cited in 25 Pa. Code § 71.63 (relating to retaining tanks).

**§ 73.12. Site location.**

(a) A proposed absorption area or spray field having the following characteristics shall be considered unsuitable for the installation of an onlot system or an individual residential spray irrigation system and a permit shall be denied where:

(1) The slope of the proposed absorption area or spray field is greater than 25%.

(2) The area is identified by completed Federal Flood Insurance mapping as a floodway. Where there is no flood mapping, a flood way extends 50 feet from the top of the stream bank as determined by the local agency. This paragraph is not applicable to spray fields.

(3) One or more rock outcrops exist within the proposed absorption area.

(4) In areas underlain by limestone, depressions left by earlier sinkholes exist either in whole or in part within the proposed absorption area or spray field.

(b) Absorption areas or spray fields may not be placed in or on fill unless the fill has remained in place for a minimum of 4 years to allow restoration of natural permeability. The fill shall be composed of clean mineral soil and meet the provisions of § 73.14 (relating to site investigation).

(c) Absorption areas or spray fields shall be sited only in or on undisturbed soils.

**Authority**

The provisions of this § 73.12 amended under section 9 of the Pennsylvania Sewage Facilities Act (35 P. S. § 750.9); The Clean Streams Law (35 P. S. §§ 691.1—691.1001); and section 1920-A of The Administrative Code of 1929 (71 P. S. § 510-20).

**Source**

The provisions of this § 73.12 adopted August 2, 1971, effective August 14, 1971, 1 Pa.B. 1649; amended April 26, 1974, effective May 13, 1974, 4 Pa.B. 817; amended August 30, 1974, effective September 16, 1974, 4 Pa.B. 1805; amended January 21, 1983, effective January 22, 1983, 13 Pa.B. 508; amended November 7, 1997, effective November 8, 1997, 27 Pa.B. 5877. Immediately preceding text appears at serial page (221911).

**Cross References**

This section cited in 25 Pa. Code § 71.63 (relating to retaining tanks); and 25 Pa. Code § 73.161 (relating to general).

**§ 73.13. Minimum horizontal isolation distances**

(a) Minimum horizontal isolation distances shown in subsections (b)—(e) shall be maintained between the sewage disposal system and the features itemized except as provided by § 72.33 (relating to well isolation distance exemption). If conditions warrant, greater isolation distances may be required.

(b) The minimum horizontal isolation distances between the features named and treatment tanks, dosing tanks, lift pump tanks, filter tanks and chlorine contact/storage tanks shall comply with the following:

- (1) Property line, easement or right-of-way—10 feet.
  - (2) Occupied buildings, swimming pools and driveways—10 feet.
  - (3) An individual water supply or water supply system suction line—50 feet.
  - (4) Water supply line under pressure—10 feet.
  - (5) Streams, lakes or other surface waters—25 feet.
  - (6) A cistern used as a water supply—25 feet.
- (c) The following minimum horizontal isolation distances shall be maintained between the features named and the perimeter of the aggregate in the absorption area:
- (1) Property line, easement or right-of-way—10 feet.
  - (2) Occupied buildings, swimming pools and driveways—10 feet.
  - (3) An individual water supply or water supply system suction line—100 feet.
  - (4) Water supply line under pressure—10 feet.
  - (5) Streams, water courses, lakes, ponds or other surface water—50 feet (for the purposes of this chapter wetlands are not surface waters).
  - (6) Other active onlot systems—5 feet.
  - (7) Surface drainageways—10 feet.
  - (8) Mine subsidence areas, mine bore holes or sink holes—100 feet.
  - (9) Rock outcrop or identified shallow pinnacle—10 feet.
  - (10) Natural or manmade slope greater than 25%—10 feet.
  - (11) A cistern used as a water supply—25 feet.
  - (12) Detention basins, retention basins and stormwater seepage beds—10 feet.
- (d) The following minimum horizontal isolation distances shall be maintained between the features named and the wetted perimeter of the spray field:
- (1) Property lines, easements or right of ways—25 feet.
  - (2) Occupied buildings and swimming pools—100 feet.
  - (3) An individual water supply or water supply suction line—100 feet.
  - (4) A cistern used as a water supply—25 feet.
  - (5) Water supply line under pressure—10 feet.
  - (6) Streams, watercourses, lakes, ponds or other surface waters—50 feet. For the purposes of this chapter wetlands are not surface waters.
  - (7) Mine subsidence, boreholes, sinkholes—100 feet.
  - (8) Roads or driveways—25 feet.
  - (9) Unoccupied buildings—25 feet.
  - (10) Rock outcrop—25 feet.
- (e) The area within the wetted perimeter of the spray field may not be sited over an unsuitable soil profile.

**Authority**

The provisions of this § 73.13 amended under section 9 of the Pennsylvania Sewage Facilities Act (35 P. S. § 750.9); The Clean Streams Law (35 P. S. §§ 691.1—691.1001); and section 1920-A of The Administrative Code of 1929 (71 P. S. § 510-20).

**Source**

The provisions of this § 73.13 adopted January 21, 1983, effective January 22, 1983, 13 Pa.B. 508.

**Cross References**

This section cited in 25 Pa. Code § 71.63 (relating to retaining tanks); 25 Pa. Code § 72.32 (relating to sales contracts); 25 Pa. Code § 72.33 (relating to well isolation distance exemption); and 25 Pa. Code § 73.161 (relating to general).

**§ 73.14. Site investigation.**

(a) *Absorption area.* Soil tests to determine the presence of a limiting zone and the capacity of the soil to permit the passage of water shall be conducted prior to permit issuance.

(1) On all locations where the installation of an absorption area is proposed, at least one excavation for examination of the soil profile shall be provided.

(2) The depth of the excavation shall be to the top of the limiting zone, or a maximum of 7 feet.

(3) All soil profile excavations shall be conducted within 10 feet of the proposed absorption area. A description of the soil profile shall be recorded on the site investigation and percolation test report form for onlot disposal of sewage issued by the Department.

(4) Where soil has been removed by grading or excavation, the surface of the undisturbed soil shall be considered to be the point from which the depth to limiting zone is measured. Excavating soil to system installation depth for the purpose of installing the system may not be considered disturbing the soil.

(5) When the examination of the soil profile reveals a limiting zone within 20 inches of the mineral soil surface, percolation tests may not be conducted and a permit will be denied except as provided in § 73.77 (relating to general requirements for bonded disposal systems).

(6) Where examination of the soil profile reveals the absence of a limiting zone within 20 inches of the mineral soil surface, percolation tests shall be performed within the proposed absorption area. The average percolation rate shall be within the range indicated in § 73.16 (relating to absorption area requirements).

(7) The location and depth to the limiting zone of all soil profile excavations and the location of all percolation tests conducted on a lot shall be indicated on the plot plan of the Application for Sewage Disposal System issued by the Department or attached diagram.

(b) *Spray field.*

(1) Soil tests to determine the presence of a limiting zone shall be conducted prior to permit issuance.

(2) A minimum of 4 soil profile evaluations shall be evenly spaced within 10 feet of the perimeter of the proposed spray field when the spray field is less than or equal to 20,000 square feet.

(3) Spray fields in excess of 20,000 square feet shall be evaluated by evenly spacing the soil profiles within 10 feet of the perimeter of the proposed spray field at intervals of 100 feet or less.

(4) The soil profile information collected within the proposed spray field area shall be considered in the design and permitting of the system. Additional soils profiles, both on the perimeter or within the proposed spray field, may be required when the sewage enforcement officer identifies trends in the soils profiles or surface features which document variable soils conditions in the area of the proposed spray field. These trends include, but are not limited to, unsuitable soil areas mixed with suitable soils within the proposed site and surface features such as rock outcrops, mine subsidence, boreholes and sinkholes.

(5) Soil profiles shall be evaluated to the depth of bedrock, or rock formation or 40 inches whichever is shallower.

(6) When the examination of the soil profile reveals a limiting zone of a seasonal high water table within 10 inches of the mineral soil surface or a limiting zone as indicated by bedrock or coarse fragments with insufficient fine soil to fill voids that are located within 16 inches of the mineral soil surface, a permit for an individual residential spray irrigation system will be denied.

#### Authority

The provisions of this § 73.14 amended under sections 7.2 and 9 of the Pennsylvania Sewage Facilities Act (35 P. S. §§ 750.7b and 750.9); The Clean Streams Act (35 P. S. §§ 691.1—691.1001); and section 1920-A of The Administrative Code of 1929 (71 P. S. § 510-20).

#### Source

The provisions of this § 73.14 adopted January 21, 1983, effective January 22, 1983, 13 Pa.B. 508; amended November 1, 1996, effective November 2, 1996, 26 Pa.B. 5347; amended November 7, 1997, effective November 8, 1997, 27 Pa.B. 5877. Immediately preceding text appears at serial pages (221912) to (221913).

#### Cross References

This section cited in 25 Pa. Code § 71.63 (relating to retaining tanks); 25 Pa. Code § 73.12 (relating to site location); and 25 Pa. Code § 73.161 (relating to general).

### § 73.15. Percolation tests.

Percolation tests shall be conducted in accordance with the following procedure:

(1) *Number and location.* Six or more tests shall be made in separate test holes spaced uniformly over the proposed absorption area site.

(2) *Results.* Percolation holes located within the proposed absorption area shall be used in the calculation of the arithmetic average percolation rate.

(3) *Type of hole.* Holes having a uniform diameter of 6 to 10 inches shall be bored or dug as follows:

(i) To the depth of the proposed absorption area, where the limiting zone is 60 inches or more from the mineral soil surface.

(ii) To a depth of 20 inches if the limiting zone is identified as seasonal high water table, whether perched or regional; rock formation; other stratum; or other soil condition which is so slowly permeable that it effectively limits downward passage of effluent, occurring at less than 60 inches from the mineral soil surface.

(iii) To a depth 8 inches above the limiting zone or 20 inches, whichever is less, if the limiting zone is identified as rock with open joints or with fractures or solution channels, or as masses of loose rock fragments including gravel with insufficient fine soil to fill the voids between the fragments, occurring at less than 60 inches from the mineral soil surface.

(4) *Preparation.* The bottom and sides of the hole shall be scarified with a knife blade or sharp-pointed instrument to completely remove any smeared soil surfaces and to provide a natural soil interface into which water may percolate. Loose material shall be removed from the hole. Two inches of coarse sand or fine gravel shall be placed in the bottom of the hole to protect the soil from scouring and clogging of the pores.

(5) *Procedure for presoaking.* Holes shall be presoaked, according to the following procedure, to approximate normal wet weather or in-use conditions in the soil:

(i) *Initial presoak.* Holes shall be filled with water to a minimum depth of 12 inches over the gravel and allowed to stand undisturbed for 8 to 24 hours prior to the percolation test.

(ii) *Final presoak.* Immediately before the percolation test, water shall be placed in the hole to a minimum depth of 6 inches over the gravel and readjusted every 30 minutes for 1 hour.

(6) *Determination of measurement interval.* The drop in the water level during the last 30 minutes of the final presoaking period shall be applied to the following standard to determine the time interval between readings for each percolation hole:

(i) If water remains in the hole, the interval for readings during the percolation test shall be 30 minutes.

(ii) If no water remains in the hole, the interval for readings during the percolation test may be reduced to 10 minutes.

(7) *Measurement.* After the final presoaking period, water in the hole shall again be adjusted to approximately 6 inches over the gravel and readjusted when necessary after each reading.



(i) Measurement to the water level in the individual percolation holes shall be made from a fixed reference point and shall continue at the interval determined from paragraph (6) for each individual percolation hole until a minimum of eight readings are completed or until a stabilized rate of drop is obtained whichever occurs first. A stabilized rate of drop means a difference of 1/4 inch or less of drop between the highest and lowest readings of four consecutive readings.

(ii) The drop that occurs in the final period in percolation test holes, expressed as minutes per inch, shall be used to calculate the arithmetic average percolation rate.

(iii) When the rate of drop in a percolation test is too slow to obtain a measurable rate, the rate of 240 minutes per inch shall be assigned to that hole for use in calculating the arithmetic average percolation rate. The absorption area may be placed over holes with no measurable rate when the average percolation rate for the proposed absorption area is within the limits established in § 73.16 (relating to absorption and spray field area requirements), Table A.

(iv) When a percolation test hole is dry at the end of a 10 minute testing interval, that hole may not be used in the calculation of the arithmetic average percolation rate. If 1/3 or more of the percolation test holes are dry at the end of a 10 minute testing interval, the proposed absorption area may not be designed or installed over these holes unless the local agency determines that an anomaly caused the fast percolation rate and a retest of the area is within the acceptable percolation rate limits. If no anomaly is discovered, the local agency may accept the percolation test results from the remaining holes if the results are supplemented with the results of additional percolation testing conducted outside of the area in which the dry percolation holes were found.

#### Authority

The provisions of this § 73.15 amended under sections 7.2 and 9 of the Pennsylvania Sewage Facilities Act (35 P. S. §§ 750.7b and 750.9); The Clean Streams Act (35 P. S. §§ 691.1—691.1001); and section 1920-A of The Administrative Code of 1929 (71 P. S. § 510-20).

#### Source

The provisions of this § 73.15 adopted January 21, 1983, effective January 22, 1983, 13 Pa.B. 508; amended November 1, 1996, effective November 2, 1996, 26 Pa.B. 5347; amended November 7, 1997, effective November 8, 1997, 27 Pa.B. 5877. Immediately preceding text appears at serial pages (221913) to (221915).

#### Cross References

This section cited in 25 Pa. Code § 71.63 (relating to retaining tanks); and 25 Pa. Code § 73.54 (relating to subsurface sand filters).

**§ 73.16. Absorption and spray field area requirements.**

(a) *General.* Absorption areas and spray fields for single family dwellings not served by a community sewage system shall be designed based on a minimum flow of 400 gpd for all dwellings having three bedrooms or less. The minimum flow of 400 gpd shall be increased by 100 gpd for each bedroom over three.

(b) *Absorption areas.*

(1) Only the bottom of the aggregate area of the bed or trench shall be used in calculating absorption area requirements.

(2) Absorption area requirements for single family dwellings served by a community sewage system and for apartments or nonresidential establishments served by an individual onlot or community onlot sewage system shall be designed based on flows listed in § 73.17 (relating to sewage flows) for the type of facility to be served.

(3) For nonresidential establishments, a volume of 200 gpd shall be the minimum volume used in calculating the size of the absorption area.

(c) *Required absorption area.* Table A shall be used in calculating the square footage of absorption area required based on flows determined in subsections (a) and (b). Table A includes allowances for garbage grinders, automatic washing machines or dishwashers and water softeners.

(d) *Substitute.* When a substitute for aggregate, such as a leaching chamber, large diameter pipe, or other material or device, is used in the absorption area, subsection (b)(1) applies.

**TABLE A**  
**Minimum Aggregate Absorption Area Requirements for Treatment Tank Effluent:**

<i>Average Percolation Rate Expressed as Minute Per Inch</i>	<i>Square Feet of Aggregate Area Per Gallon Per Day</i>	
	<i>All Systems Except Elevated Sand Mounds and Subsurface Sand Filters</i>	<i>Subsurface Sand Filters and Elevated Sand Mounds</i>
Less than 3.0 <sup>D</sup>	Unsuitable	Unsuitable
3 - 5 <sup>C</sup>	Unsuitable	1.50 <sup>AB</sup>
6 - 15 <sup>C</sup>	1.19 <sup>B</sup>	1.50 <sup>AB</sup>
16 - 30 <sup>C</sup>	$(\text{Avg. Perc Rate} - 15) \times (0.040) + 1.19^{\text{B}}$	1.50 <sup>AB</sup>
31 - 45 <sup>C</sup>	$(\text{Avg. Perc Rate} - 30) \times (0.030) + 1.79^{\text{B}}$	$(\text{Avg. Perc Rate} - 30) \times (0.026) + 1.50^{\text{AB}}$
46 - 60 <sup>C</sup>	$(\text{Avg. Perc Rate} - 45) \times (0.028) + 2.24^{\text{B}}$	$(\text{Avg. Perc Rate} - 45) \times (0.022) + 1.89^{\text{A}}$
61 - 90 <sup>C</sup>	$(\text{Avg. Perc Rate} - 60) \times (0.023) + 2.66^{\text{A}}$	$(\text{Avg. Perc Rate} - 60) \times (0.020) + 2.22^{\text{A}}$
91 - 120 <sup>ACD</sup>	Unsuitable	$(\text{Avg. Perc Rate} - 90) \times (0.017) + 2.82^{\text{A}}$
121 - 150 <sup>CD</sup>	Unsuitable	$((\text{Avg. Perc Rate} - 120) \times (0.015) + 3.33) (1.05)^{\text{A}}$
151 - 180 <sup>CD</sup>	Unsuitable	$((\text{Avg. Perc Rate} - 150) \times (0.014) + 3.78) (1.10)^{\text{A}}$

Average Percolation Rate Expressed as Minute Per Inch	Square Feet of Aggregate Area Per Gallon Per Day	
	All Systems Except Elevated Sand Mounds and Subsurface Sand Filters	Subsurface Sand Filters and Elevated Sand Mounds
Greater than 181 <sup>CD</sup>	Unsuitable	Unsuitable

A Pressure dosing required.

B One third reduction may be permitted for use of an aerobic tank.

C May be considered for experimental or alternate proposals.

D Unsuitable for subsurface sand filters.

(e) *Spray fields.* Table B shall be used in calculating the square footage of spray fields based on flows determined in Sub-section (a). Table B includes allowances for garbage grinders, automatic washing machines, dishwashers and water softeners.

**TABLE B**

Soil Characteristics		Slope	Required Spray Field Area (Ft <sup>2</sup> )	
Depth To Rock	Depth To Water Table		3 Bedroom Home	Additional Area Per Bedroom
16 to 20 inches	10 to 40 inches	≤12%	40,000	10,000
		>12%	80,000	20,000
	>40 inches	≤12%	15,000	3,750
		>12%	30,000	7,500
>20 inches	10 to 20 inches	≤12%	20,000	5,000

Soil Characteristics		Slope	Required Spray Field Area (Ft <sup>2</sup> )	
Depth To Rock	Depth To Water Table		3 Bedroom Home	Additional Area Per Bedroom
		>12%	40,000	10,000
	>20 inches	≤12%	10,000	2,500
		>12%	20,000	5,000

**Authority**

The provisions of this § 73.16 amended under section 9 of the Pennsylvania Sewage Facilities Act (35 P. S. § 750.9); The Clean Streams Law (35 P. S. §§ 691.1—691.1001); and section 1920-A of The Administrative Code of 1929 (71 P. S. § 510-20).

**Source**

The provisions of this § 73.16 adopted January 21, 1983, effective January 22, 1983, 13 Pa.B. 508; amended November 7, 1997, effective November 8, 1997, 27 Pa.B. 5877; corrected November 21, 1997, 27 Pa.B. 6079. Immediately preceding text appears at serial pages (221915) to (221916) and (217317) to (217318).

**Cross References**

This section cited in 25 Pa. Code § 71.52 (relating to content requirements—new land development revisions); 25 Pa. Code § 71.63 (relating to retaining tanks); 25 Pa. Code § 72.22 (relating to permit issue); 25 Pa. Code § 73.14 (relating to site investigation); 25 Pa. Code § 73.15 (relating to percolation tests); 25 Pa. Code § 73.54 (relating to subsurface sand filters); 25 Pa. Code § 73.161 (relating to general); and 25 Pa. Code § 73.163 (relating to spray fields).

**§ 73.17. Sewage flows.**

(a) The flow figures in this subsection and subsection (b) are peak daily flows for the design of community onlot sewage systems. These flow figures are not intended to be used for the calculation of flows for the design of community sewerage systems or for the allocation of flows related to community sewerage systems. Design and permit sewage flows for a community sewerage system are to be calculated using the procedures established in the Department's "Domestic Wastewater Facilities Manual." The sewage flow from single family dwellings served by a community onlot sewage system or from apartments, rooming houses, hotels and motels served by an individual or community sewage system shall be determined from the following table:

<i>Type of Establishment</i>	<i>Gallons/Unit/day</i>	
	<i>Gallons/unit</i>	<i>BOD/unit</i>
<i>Residential</i>		
Hotels and motels	100	.30
Multiple family dwellings and apartments, including townhouses, duplexes and condominiums	400	1.13
Rooming houses (per unit)	200	.60
Single family residences	400*	.90

\*For units of 3 bedrooms or less; for each bedroom over 3, add 100 gallons.

(b) The sewage flow, which shall exclude any industrial waste, for nonresidential establishments served by an individual or community sewage system shall be determined from the following table:

<i>Type of Establishment</i>	<i>Gallons/day</i>	<i>BOD/day</i>
<i>Commercial</i>		
Airline catering (per meal served)	3	.03
Airports (per passenger—not including food)	5	.02
Airports (per employe)	10	.06
One licensed operator Beauty shops	200	—
Bus service areas not including food (per patron and employe)	5	.02
Country clubs not including food (per patron and employe)	30	.02
Drive-in theaters (not including food—per space)	10	.06
Factories and plants exclusive of industrial wastes (per employe)	35	.08
Laundries, self-service (gallons/washer)	400	2.00
Mobile home parks, independent (per space)	400	1.00
Movie theaters (not including food, per auditorium seat)	5	.03
Offices (per employe)	10	.06
Restaurants (toilet and kitchen wastes per patron)	10	.06
(Additional for bars and cocktail lounges)	2	.02
Restaurants (kitchen and toilet wastes, single-service utensils/person)	8.5	.03
Restaurants (kitchen waste only, single-service utensils/patron)	3	.01
Stores (per public toilet)	400	2.00
Warehouses (per employe)	35	—
Work or construction camps (semipermanent) with flush toilets (per employe)	50	.17
Work or construction camps (semipermanent) without flush toilets (per employe)	35	.02
<i>Institutional</i>		
Churches (per seat)	3	—
Churches (additional kitchen waste per meal served)	3	—

<i>Type of Establishment</i>	<i>Gallons/day</i>	<i>BOD/day</i>
<i>Institutional</i>		
Churches (additional with paper service per meal served)	1.5	—
Hospitals (per bed space, with laundry)	300	.20
Hospitals (per bed space, without laundry)	220	—
Institutional food service (per meal)	20	—
Institutions other than hospitals (per bed space)	125	.17
Schools, boarding (per resident)	100	.17
Schools, day (without cafeterias, gyms or showers per student and employe)	15	.04
Schools, day (with cafeterias, but no gym or showers per student and employe)	20	.08
Schools, day (with cafeterias, gym and showers per student and employe)	25	.10
<i>Recreational and Seasonal</i>		
Camps, day (no meals served)	10	.12
Camps, hunting and summer residential (night and day) with limited plumbing including water-carried toilet wastes (per person)	50	.12
Campgrounds, with individual sewer and water hookup (per space)	100	.50
Campgrounds with water hookup only and/or central comfort station which includes water-carried toilet wastes (per space)	50	.50
Fairgrounds and parks, picnic—with bathhouses, showers, and flush toilets (per person)	15	.06
Fairgrounds and parks, picnic (toilet wastes only, per person)	5	.06
Swimming pools and bathhouses (per person)	10	.06

(c) Actual water meter or sewer meter flow data indicating peak daily flows different than those shown in this section over a 1-year period for a similar non-residential establishment may be accepted for use in sizing the onlot disposal system. If average daily flows are used, the peak daily flow shall be calculated by multiplying the average daily flow by two.



(d) Establishments with food preparation facilities are required to install adequately designed pretreatment units and traps to reduce greases and biological oxygen demand (BOD) prior to discharge to an individual or community sewage system.

**Authority**

The provisions of this § 73.17 amended under section 9 of the Pennsylvania Sewage Facilities Act (35 P. S. § 750.9); The Clean Streams Law (35 P. S. §§ 691.1—691.1001); and section 1920-A of The Administrative Code of 1929 (71 P. S. § 510-20).

**Source**

The provisions of this § 73.17 adopted January 21, 1983, effective January 22, 1983, 13 Pa.B. 508; amended November 7, 1997, effective November 8, 1997, 27 Pa.B. 5877. Immediately preceding text appears at serial pages (217318) to (217320).

**Cross References**

This section cited in 25 Pa. Code § 71.52 (relating to content requirements—new land development revisions); 25 Pa. Code § 72.22 (relating to permit issuance); 25 Pa. Code § 73.16 (relating to absorption area requirement); 25 Pa. Code § 73.31 (relating to standards for septic tanks); 25 Pa. Code § 73.32 (relating to standards for aerobic treatment tanks); and 25 Pa. Code § 73.161 (relating to general).

**BUILDING SEWERS**

**§ 73.21. Specifications.**

- (a) Building sewers shall be constructed of a durable material acceptable to the Department or the local agency.
- (b) The local agency may restrict the type of materials used by code, ordinance or resolution and shall notify the applicant when restrictions are imposed.
- (c) When the average daily flow of sewage from an establishment is 1,000 gallons or less, building sewers shall be at least 3 inches in diameter unless otherwise specified by local plumbing or building codes. When the average daily flow exceeds 1,000 gpd, all building sewers shall be at least 6 inches in diameter unless otherwise specified by local plumbing or building codes.
- (d) Cleanouts shall be provided at the junction of the building drain and building sewer.
- (e) Cleanouts shall be provided at intervals of not more than 100 feet.
- (f) Bends ahead of the treatment tank shall be limited to 45° or less where possible. If 90° bends cannot be avoided, they shall be made with two 45° bends.
- (g) The grade of the building sewer shall be at least 1/8 inch per foot; however, the grade of the 10 feet of building sewer immediately preceding the treatment tank may not exceed 1/4 inch per foot.
- (h) Building sewers shall be constructed with watertight joints, shall be of sufficient strength to withstand imposed loads and installed on material suitable for preventing damage from settling.

(i) The building sewer shall be installed to allow continuous venting of the treatment tank through the main building stack unless otherwise specified by local plumbing or building codes.

(j) Building sewers shall be connected to treatment tanks by means of water-tight mechanical seals or hydraulic grouting. Use of Portland cement grouting is not permitted.

#### Authority

The provisions of this § 73.21 amended under section 9 of the Pennsylvania Sewage Facilities Act (35 P. S. § 750.9); The Clean Streams Law (35 P. S. §§ 691.1—691.1001); and section 1920-A of The Administrative Code of 1929 (71 P. S. § 510-20).

#### Source

The provisions of this § 73.21 adopted August 2, 1971, effective August 14, 1971, 1 Pa.B. 1649; amended April 26, 1974, effective May 13, 1974, 4 Pa.B. 817; amended August 30, 1974, effective September 16, 1974, 4 Pa.B. 1805; amended January 21, 1983, effective January 22, 1983, 13 Pa.B. 508; amended November 7, 1997, effective November 8, 1997, 27 Pa.B. 5877. Immediately preceding text appears at serial page (217320).

#### Cross References

This section cited in 25 Pa. Code § 73.161 (relating to general).

### § 73.22. [Reserved].

#### Source

The provisions of this § 73.22 adopted August 2, 1971, effective August 14, 1971, 1 Pa.B. 1649; amended April 26, 1974, effective May 13, 1974, 4 Pa.B. 817; amended August 30, 1974, effective September 16, 1974, 4 Pa.B. 1805; reserved January 21, 1983, effective January 22, 1983, 13 Pa.B. 508. Immediately preceding text appears at serial page (47884).

### § 73.23. [Reserved].

#### Source

The provisions of this § 73.23 adopted August 2, 1971, effective August 14, 1971, 1 Pa.B. 1649; amended April 26, 1974, effective May 13, 1974, 4 Pa.B. 817; amended August 30, 1974, effective September 16, 1974, 4 Pa.B. 1805; reserved January 21, 1983, effective January 22, 1983, 13 Pa.B. 508. Immediately preceding text appears at serial page (30802).

## TREATMENT TANKS

### § 73.31. Standards for septic tanks.

#### (a) Capacity.

(1) The minimum liquid septic tank capacity for any installation is 900 gallons.

(2) For single-family dwelling units, not served by a community onlot system, a minimum daily flow of 400 gpd shall be used to determine required

septic tank capacity. This figure shall be increased by 100 gallons for each additional bedroom over three. The daily flow indicated provides for use of garbage grinders, automatic washing machines, dishwashers and water softeners.

(3) The minimum septic tank capacity shall be calculated from the following table using estimated sewage flows from paragraph (2), or § 73.17(a)—(c) (relating to sewage flows):

<i>Design flow (gallons per day)</i>	<i>Tank capacity (gallons)</i>
0—500	(3.5 x flow exceeding 400 gpd) + (900)
500—5,000	(1.50 x flow exceeding 500 gpd) + (1,250)
5,000—7,500	(1.45 x flow exceeding 5,000 gpd) + (8,000)
7,500—10,000	(1.35 x flow exceeding 7,500 gpd) + (11,625)
over 10,000	(1.50 x the daily flow)

Note: Septic tanks may be connected in series to attain required capacity.

(b) *Construction.*

(1) Tanks shall be watertight and constructed of sound and durable material not subject to excessive corrosion or decay.

(i) Precast concrete tanks shall have a minimum wall thickness of 2 1/2 inches and be adequately reinforced.

(ii) Precast slabs used as covers shall have a thickness of at least 3 inches and be adequately reinforced.

(iii) Tanks having a liquid capacity of 5,000 gallons or less may not be constructed of blocks, bricks or similar masonry construction.

(iv) Tanks having a capacity in excess of 5,000 gallons may be constructed onsite to meet the standards of the National Concrete Masonry Association for reinforcement and waterproofing as listed in the most recent edition of its publication "Concrete Masonry Foundation Walls," copyright 1957 NCMA.

(v) Steel tanks shall meet United States Department of Commerce Standards 177-62.

(2) The depth of liquid in any tank or its compartments shall be:

(i) Not less than 2 1/2 nor more than 5 feet for tanks having a liquid capacity of 600 gallons or less.

(ii) Not less than 3 feet nor more than 7 feet for tanks having a liquid capacity of more than 600 gallons.

(3) No tank or compartment may have an inside horizontal dimension less than 36 inches.

(4) Septic tank installations shall consist of tanks with multiple compartments or multiple tanks. The first compartment or tank shall have at least the same capacity as the second but may not exceed twice the capacity of the sec-

ond. Tanks or compartments shall be connected in series and may not exceed four in number in any one installation.

(c) *Inlet and outlet connections.*

(1) The bottom of the inlet shall be a minimum of 3 inches above the bottom of the outlet.

(2) Inlet baffles or vented tees shall extend below the liquid level at least 6 inches. Penetration of the inlet device may not exceed that of the outlet device.

(3) The outlet baffles or vented tees of each tank or compartment shall extend below the liquid surface to a distance equal to 40% of the liquid depth. Penetration of outlet baffles or tees in horizontal cylindrical tanks shall be equal to 35% of the liquid depth.

(4) The inlet and outlet baffles or vented tees shall extend above liquid depth to approximately 1 inch from the top of the tank. Venting shall be provided between compartments and each tank.

(5) The outlet baffles or vented tees of the last compartment or tank shall be equipped with a solids retainer.

(d) *Treatment tank access.*

(1) Access to each tank or compartment of the tank shall be provided by a manhole with an inside dimension of at least 20 inches square (20 × 20) or in diameter, with a removable cover. The top of the tank containing the manhole or the top of a manhole extension may not be more than 12 inches below grade level. If access is extended to grade, the access cover shall be airtight. Grade level access covers shall be secured by bolts or locking mechanisms, or have sufficient weight to prevent unauthorized access.

(2) The ground shall slope away from any access extended to grade level.

(e) *Inspection port.* A maximum 4-inch diameter inspection port with sealed cover shall be installed to grade level above the inlet tee.

#### Authority

The provisions of this § 73.31 amended under section 9 of the Pennsylvania Sewage Facilities Act (35 P. S. § 750.9); The Clean Streams Law (35 P. S. §§ 691.1—691.1001); and section 1920-A of The Administrative Code of 1929 (71 P. S. § 510-20).

#### Source

The provisions of this § 73.31 adopted August 2, 1971, effective August 14, 1971, 1 Pa.B. 1649; amended April 26, 1974, effective May 13, 1974, 4 Pa.B. 817; amended August 30, 1974, effective September 16, 1974, 4 Pa.B. 1805; amended January 21, 1983, effective January 22, 1983, 13 Pa.B. 508; amended November 7, 1997, effective November 8, 1997, except subsection (b)(4) effective January 7, 1998, 27 Pa.B. 5877; corrected November 21, 1997, 27 Pa.B. 6079. Immediately preceding text appears at serial pages (217321) to (217323).

**Cross References**

This section cited in 25 Pa. Code § 73.45 (relating to dosing tanks); 25 Pa. Code § 73.62 (relating to standards for holding tanks); 25 Pa. Code § 73.63 (relating to standards for privies); and 25 Pa. Code § 73.161 (relating to general).

**§ 73.32. Standards for aerobic treatment tanks.**

(a) Capacity shall comply with the following:

(1) The rated treatment capacity of an aerobic treatment tank shall be specified by the manufacturer. The manufacturer's data shall be in conformance with the approved test sequence and protocol in subsection (b).

(2) The minimum manufacturer's rated treatment capacity of an aerobic treatment tank approved under this section is 400 gpd.

(3) For single family dwelling units not served by a community system, a minimum daily flow of 400 gpd shall be used to determine required aerobic tank capacity. This figure shall be increased by 100 gallons for each additional bedroom over three. The daily flow indicated provides for use of garbage grinders, automatic washing machines, dishwashers and water softeners.

(4) For all other installations, the rated treatment capacity shall meet or exceed the estimated daily sewage flow as determined from § 73.17(a), (b) or (c) (relating to sewage flows).

(b) Testing and approval shall comply with the following:

(1) Aerobic treatment tanks serving single family dwellings, or establishments, with flows of 1,500 gpd or less shall bear the seal of the NSF indicating testing and approval by that agency under Standard No. 40.

(2) Units tested and awarded a seal under other than the current standard shall be approved for use until expiration of the seal. Units initially submitted for testing or resubmitted for testing shall be approved under the version of Standard No. 40 in effect at that time.

(3) Aerobic treatment tanks serving establishments with flows exceeding 1,500 gpd shall either:

(i) Have NSF certification under Criteria C-9.

(ii) Have performance data certified by NSF under the provisions of that agency's Standard Performance Evaluation Method.

(c) The Department will provide local agencies with a current list of aerobic sewage treatment tanks that have been found to be in conformance with the Department's standard.

(d) Multiple aerobic treatment tanks connected for the purpose of achieving required hydraulic capacity shall only be permitted where the tanks are connected in parallel. All tanks shall have equal capacity and receive equal loading.

(e) Every aerobic sewage treatment tank shall be equipped with a visual and audible alarm system which shall be designed to respond to any electrical or mechanical failure or malfunction of the tank or any component thereof.

**Authority**

The provisions of this § 73.32 amended under section 9 of the Pennsylvania Sewage Facilities Act (35 P. S. § 750.9); The Clean Streams Law (35 P. S. §§ 691.1—691.1001); and section 1920-A of The Administrative Code of 1929 (71 P. S. § 510-20).

**Source**

The provisions of this § 73.32 adopted August 2, 1971, effective August 14, 1971, 1 Pa.B. 1649; amended April 26, 1974, effective May 13, 1974, 4 Pa.B. 817; amended August 30, 1974, effective September 16, 1974, 4 Pa.B. 1805; amended January 21, 1983, effective January 22, 1983, 13 Pa.B. 508; amended November 7, 1997, effective November 8, 1997, 27 Pa.B. 5877. Immediately preceding text appears at serial pages (217323) to (217324).

**Cross References**

This section cited in 25 Pa. Code § 73.161 (relating to general).

**§ 73.33. [Reserved].****Source**

The provisions of this § 73.33 adopted August 2, 1971, effective August 14, 1971, 1 Pa.B. 1649; amended April 26, 1974, effective May 13, 1974, 4 Pa.B. 817; amended August 30, 1974, effective September 16, 1974, 4 Pa.B. 1805; reserved January 21, 1983, effective January 22, 1983, 13 Pa.B. 508. Immediately preceding text appears at serial pages (30803) to (30804).

**§ 73.34. [Reserved].****Source**

The provisions of this § 73.34 adopted August 2, 1971, effective August 14, 1971, 1 Pa.B. 1649; amended April 26, 1974, effective May 13, 1974, 4 Pa.B. 817; amended August 30, 1974, effective September 16, 1974, 4 Pa.B. 1805; reserved January 21, 1983, effective January 22, 1983, 13 Pa.B. 508. Immediately preceding text appears at serial page (30804).

**§ 73.35. [Reserved].****Source**

The provisions of this § 73.35 adopted August 2, 1971, effective August 14, 1971, 1 Pa.B. 1649; amended April 26, 1974, effective May 13, 1974, 4 Pa.B. 817; amended August 30, 1974, effective September 16, 1974, 4 Pa.B. 1805; reserved January 21, 1983, effective January 22, 1983, 13 Pa.B. 508. Immediately preceding text appears at serial page (30804).

**DOSING AND DISTRIBUTION REQUIREMENTS****§ 73.41. General.**

Effluent from the treatment tank shall be discharged to the dosing tank, to the distribution box or directly to the absorption area through a watertight line a minimum of 3 inches in diameter unless otherwise specified by local plumbing or building codes. All lines shall be placed on a minimum grade of at least 1/4 inch per foot, sloping away from the treatment tank. Where a distribution box is

used, the lines from that box to the laterals shall meet the same standard. If a free access sand filter or buried sand filter is used, the lines from the treatment tank to the pump station and the filter tank to a lift station or chlorine contact tank or storage tank shall meet the standards of this section. Connections of lines to tanks and distribution boxes shall be made using water tight mechanical seals or hydraulic grouting. Use of Portland cement grouting material is not permitted.

#### Authority

The provisions of this § 73.41 amended under section 9 of the Pennsylvania Sewage Facilities Act (35 P. S. § 750.9); The Clean Streams Law (35 P. S. §§ 691.1—691.1001); and section 1920-A of The Administrative Code of 1929 (71 P. S. § 510-20).

#### Source

The provisions of this § 73.41 adopted August 2, 1971, effective August 14, 1971, 1 Pa.B. 1649; amended August 30, 1974, effective September 16, 1974, 4 Pa.B. 1805; amended January 21, 1983, effective January 22, 1983, 13 Pa.B. 508; amended November 7, 1997, effective November 8, 1997, 27 Pa.B. 5877. Immediately preceding text appears at serial page (217325).

#### Notes of Decisions

##### *Treatment Tank*

Under this section, aerobic sewage treatment tanks may only be installed on an experimental basis, and only then, subject to the approval and continuing review of the Department. *Voortman v. Bucks County Zoning Hearing Board*, 343 A.2d 393 (Pa. Cmwlth. 1975).

#### Cross References

This section cited in 25 Pa. Code § 73.161 (relating to general).

### § 73.42. Gravity distribution.

- (a) Gravity distribution may be used in all instances, except where prohibited by § 73.43 (relating to pressurized distribution).
- (b) The distribution system shall be arranged to provide for uniform distribution of the effluent.
- (c) The flow shall be equally divided between individual laterals of a trench system or between seepage beds by use of a distribution box.
- (d) The flow shall be divided between individual laterals in a seepage bed by a distribution box or by an unperforated pipe header connecting all laterals within the bed. Where distribution is via an unperforated pipe header, the terminal ends of all individual laterals shall also be connected with unperforated pipe.
- (e) Distribution boxes shall comply with the following:
  - (1) When a distribution box is used, it shall be installed level to provide equal distribution of treatment tank effluent to each line. For testing purposes, the person responsible for the installation shall provide an adequate amount of water to check the level of the inlet and outlet lines.
  - (2) Construction shall comply with the following:
    - (i) Distribution boxes shall have removable covers.

- (ii) Each lateral shall be connected separately to the distribution box.
- (iii) The bottom of all outlets shall be at the same elevation, and the bottom of the inlet shall be at least 1 inch above the bottom of the outlet. The bottom of the outlet shall be at least 4 inches above the bottom of the distribution box.
- (iv) Baffles shall comply with the following:
  - (A) A baffle shall be installed in the distribution box in the event that treatment tank effluent is discharged to the distribution box by a pump or siphon.
  - (B) The baffle shall be perpendicular to the inlet, be secured to the bottom of the box and extend vertically to a point level with the crown of the inlet pipe.
  - (v) A tee or elbow directed toward the bottom of the distribution box may be substituted for the baffle required by subparagraph (iv).
- (3) Distribution boxes shall be installed on an adequate base of undisturbed or properly compacted earth or aggregate outside of the absorption area. Light-weight nonconcrete distribution boxes shall be anchored or otherwise secured to prevent shifting after installation. Adjustable distribution box weirs may be used on the outlet of the box.
- (f) Laterals shall be a minimum of 3 inches in diameter unless a larger diameter is specified by local plumbing or building codes. Bends used in the disposal field shall be made with standard fittings.
- (g) The maximum length of individual laterals employing gravity distribution is 100 feet.

#### Authority

The provisions of this § 73.42 amended under section 9 of the Pennsylvania Sewage Facilities Act (35 P. S. § 750.9); The Clean Streams Law (35 P. S. §§ 691.1—691.1001); and section 1920-A of The Administrative Code of 1929 (71 P. S. § 510-20).

#### Source

The provisions of this § 73.42 adopted August 2, 1971, effective August 14, 1971, 1 Pa.B. 1649; amended August 30, 1974, effective September 16, 1974, 4 Pa.B. 1805; amended January 21, 1983, effective January 22, 1983, 13 Pa.B. 508; amended November 7, 1997, effective November 8, 1997, 27 Pa.B. 5877. Immediately preceding text appears at serial pages (217325) to (217326).

### § 73.43. Pressurized distribution.

Pressurized distribution is required in the following instances:

- (1) All elevated sand mounds.
- (2) When the percolation rate exceeds 60 minutes/inch.
- (3) All systems having a total absorption area in excess of 2,500 square feet.
- (4) Individual residential spray irrigation system spray fields and buried sand filters.



**Authority**

The provisions of this § 73.43 amended under section 9 of the Pennsylvania Sewage Facilities Act (35 P. S. § 750.9); The Clean Streams Law (35 P. S. §§ 691.1—691.1001); and section 1920-A of The Administrative Code of 1929 (71 P. S. § 510-20).

**Source**

The provisions of this § 73.43 adopted August 2, 1971, effective August 14, 1971, 1 Pa.B. 1649; amended August 30, 1974, effective September 16, 1974, 4 Pa.B. 1805; amended January 21, 1983, effective January 22, 1983, 13 Pa.B. 508; amended November 7, 1997, effective November 8, 1997, 27 Pa.B. 5877. Immediately preceding text appears at serial pages (217326) to (217327).

**Cross References**

This section cited in 25 Pa. Code § 73.42 (relating to gravity distribution); 25 Pa. Code § 73.46 (relating to dosing pumps); and 25 Pa. Code § 73.161 (relating to general).

**§ 73.44. Pressurized distribution design.**

(a) General requirements are as follows:

(1) The piping used in a pressurized effluent system shall have watertight joints.

(2) Systems using pressure distribution shall meet the general requirements of §§ 73.52, 73.53, 73.55, and 73.166.

(3) Delivery pipes from dosing pumps shall be installed to facilitate drainage of the distribution piping back to the dosing tank between doses.

(b) Seepage beds of 2,500 square feet or less shall meet the following design standards.

(1) Conveyance of effluent from the dosing tank to the absorption area shall be through a delivery pipe sized to minimize friction loss. Check valves shall be prohibited on delivery pipes. Where the system designer determines that water hammer may be a problem, thrust blocks may be installed on delivery pipes.

(2) When equally sized absorption areas are dosed simultaneously, a header pipe shall be used to connect the delivery pipe from the tank to the manifolds. The header pipe shall be sized to minimize friction loss. Effluent application rates per square foot of absorption areas served by a common header shall have a maximum design variation of 10%. If the distance from the treatment tank to the absorption area would cause excessive backflow into the dosing tank, a transfer tank may be used between the treatment tank or storage tank and dosing tank.

(3) Distribution of effluent to the individual laterals shall be by a central manifold extending into the absorption area from the delivery pipe or header. The manifold shall have the following minimum diameters:

<i>Sq. ft. of Absorption Area</i>	<i>Minimum Manifold Diameter</i>
200 to 1,199	1 1/2"
1,200 to 2,500	2"

- (4) Laterals shall be extended from both sides of the manifold by opposing tees or a double sanitary tee.
- (5) Laterals shall consist of 1 1/2 inch diameter pipe, with holes placed along the bottom of the pipe; an end cap shall be cemented on the terminal end of the lateral. Minimum hole size shall be 1/4 inch.
- (6) The first hole in the lateral shall be 3 feet from the manifold. Additional holes shall be placed 6 feet on center with the last hole placed directly in the end cap.
- (7) The maximum length of a lateral from the manifold to the end cap shall be 51 feet and contain nine holes.
- (8) The location and spacing of the laterals shall conform to § 73.53(3)—(6) (relating to seepage beds).
- (9) Opposing laterals may not differ in length by more than 6 feet.
- (10) When less than the maximum length of lateral is used, as described in paragraph (7), the lateral shall be shortened in 6-foot sections with hole spacing maintained as required in paragraph (6).
- (11) All systems shall be designed to maintain a minimum of 3 feet of head at the terminal end of each lateral.
- (12) The minimum pump capacity (gpm) shall be calculated by multiplying the total number of discharge holes contained in the laterals of a proposed distribution layout by the gpm factor determined by the hole size at the design head level.
- (13) Total pump head shall be calculated by addition of all losses incurred due to elevation changes, pipe and fitting friction losses, and the head level to be maintained at the terminal end of the lateral as specified in paragraph (11).
- (14) For purposes of calculating head loss due to friction, head loss in the standard lateral as described in paragraph (7) shall be assumed to be 0. Head loss due to friction in pipe and fittings used in construction of the pressure system shall be calculated using a friction loss table for smooth-walled plastic pipe (C=150).
- (15) When siphons are used in a pressure distribution system, each discharge hole shall be at least 5/16 inch in diameter. The discharge from all of the holes in the distribution system may not be less than the minimum rate of the siphon and may not vary from the average discharge rate of the siphon by more than 20%.
- (c) Seepage beds of greater than 2,500 square feet shall meet the following design standards:
- (1) The diameter of individual laterals, size and spacing of discharge holes, and minimum diameter of the distribution manifold may not be restricted by

subsection (b) except that no discharge hole may be less than 1/4 inch for systems using pumps or 5/16 inch for systems using siphons.

(2) The maximum length of a lateral designed under this subsection or subsection (d) shall be 100 feet.

(3) Discharge rates from the individual holes of the lateral at design head shall be calculated using the sharp-edged discharge hole equation:

$$\text{gpm} = 11.82(d^2) (\sqrt{h})$$

gpm=gallons per minute

(d)=diameter of hole (inches)

(h)=head to be maintained at the terminal ends of the lateral (in feet).

(4) All piping and fittings in the system shall be sized to minimize friction losses to provide as uniform distribution of effluent as possible.

(5) The design head at the terminal end of the last lateral shall be at least 3 feet.

(6) The head loss due to friction from the beginning of the distribution manifold to the terminal end of the last lateral may not exceed 15% of the head level to be maintained at the terminal end of the lateral.

(7) Spacing of laterals and discharge holes in the laterals shall provide for uniform distribution of the effluent over the seepage bed.

(8) The arrangement of laterals and discharge holes shall result in the discharge holes being spaced at the apexes of either squares or equilateral triangles.

(i) The maximum spacing between discharge holes shall be 10 feet where an equilateral triangle pattern is utilized.

(ii) The maximum spacing between discharge holes shall be 8 feet where a square pattern is utilized.

(9) The minimum pump capacity shall equal the total discharge from all holes in the laterals when operating at designed head.

(10) The permittee shall conduct a test pressurization of the completed distribution system in the presence of the sewage enforcement officer prior to covering the piping system from view. During the test, the permittee shall confirm that all joints are watertight and that a discharge is occurring from each hole.

(d) Design of pressure distribution in trenches shall comply with the following:

(1) Subsection (c)(1)—(4) and (10) applies to design of trenches utilizing pressurized effluent distribution.

(2) Variation in head in the laterals caused by differences in elevation or friction losses shall be compensated for by individual design of the laterals.

(3) The effluent application rate per square foot of any two trenches served by a common dosing tank shall have a maximum design variation of 10%.

- (4) Equalization of loading may be accomplished by variation of discharge hole diameter between trenches, variation of spacing of discharge holes between trenches or another method approved by the Department or sewage enforcement officer.
- (5) The maximum spacing between discharge holes is 10 feet.
- (6) The manifold for a trench system shall be placed on undisturbed soil a minimum of 6 inches above the trench bottom.
- (7) A minimum isolation distance of 3 feet shall be maintained between the manifold and the beginning of any trench. The individual laterals in the trench shall be connected to the manifold using unperforated pipe. The area beneath the manifold and connecting pipe shall consist of undisturbed or compacted soil.
- (8) The design head at the terminal end of each lateral shall be at least 3 feet.

#### Authority

The provisions of this § 73.44 amended under section 9 of the Pennsylvania Sewage Facilities Act (35 P. S. § 750.9); The Clean Streams Law (35 P. S. §§ 691.1—691.1001); and section 1920-A of The Administrative Code of 1929 (71 P. S. § 510-20).

#### Source

The provisions of this § 73.44 adopted August 2, 1971, effective August 14, 1971, 1 Pa.B. 1649; amended August 30, 1974, effective September 16, 1974, 4 Pa.B. 1805; amended January 21, 1983, effective January 22, 1983, 13 Pa.B. 508; corrected May 22, 1992, effective May 13, 1983, 22 Pa. B. 2715; amended November 7, 1997, effective November 8, 1997, 27 Pa.B. 5877. Immediately preceding text appears at serial pages (217327) to (217329).

#### Cross References

This section cited in 25 Pa. Code § 73.53 (relating to seepage beds); and 25 Pa. Code § 73.161 (relating to general).

### § 73.45. Dosing tanks.

Dosing tanks shall be constructed to the following specifications:

- (1) Dosing tanks shall be constructed of materials to the specifications outlined in § 73.31(b) (relating to standards for septic tanks).
- (2) For all systems other than individual residential spray irrigation systems, the dosing tank shall be designed so that the estimated daily flow shall be discharged to the absorption area in one or more doses. Minimum dose volume shall be five times the internal liquid capacity of the delivery pipe, manifold and laterals, or 100 gallons, whichever is greater. When a siphon is used in a pressure distribution system, the minimum dose volume shall be equal to the internal liquid capacity of the delivery line plus five times the internal liquid capacity of the manifold and laterals.
- (3) The dosing tank shall have a minimum liquid capacity equal to or greater than two times the designed dose volume.

(4) Sufficient space shall be provided for electrical connections and proper pump control operation.

(5) Unless otherwise regulated by local electrical codes, all electrical connections shall be moisture resistant and at a point higher than the inlet pipe, or mounted above grade outside of the dosing tank or manhole extension within a tamper resistant, lockable control box.

(6) A watertight manhole, at least 20 inches square or 24 inches in diameter, extended to grade, shall be provided for access to the dosing tank. Manhole covers shall meet the specifications of § 73.31(d).

#### Authority

The provisions of this § 73.45 amended under section 9 of the Pennsylvania Sewage Facilities Act (35 P. S. § 750.9); The Clean Streams Law (35 P. S. §§ 691.1—691.1001); and section 1920-A of The Administrative Code of 1929 (71 P. S. § 510-20).

#### Source

The provisions of this § 73.45 adopted August 2, 1971, effective August 14, 1971, 1 Pa.B. 1649; amended August 30, 1974, effective September 16, 1974, 4 Pa.B. 1805; amended January 21, 1983, effective January 22, 1983, 13 Pa.B. 508; amended November 7, 1997, effective November 8, 1997, 27 Pa.B. 5877. Immediately preceding text appears at serial pages (217329) to (217330).

#### Cross References

This section cited in 25 Pa. Code § 73.46 (relating to dosing pumps); 25 Pa. Code § 73.161 (relating to general); and 25 Pa. Code § 73.164 (relating to chlorine contact/storage tanks).

### § 73.46. Dosing pumps, siphons and lift pumps.

(a) Dosing pumps for all onlot sewage disposal systems except individual residential spray irrigation systems shall meet the following specifications:

(1) The pump shall be sized to deliver a flow in gpm equal to or greater than the combined flows from all discharge holes in the laterals when operating at designed level of head and shall be rated by the manufacturer for handling of sewage effluent.

(2) The intake of the dosing pump shall be at least 6 inches from the bottom of the tank. The intake of any dosing pump shall be at a lower elevation than the lowest lateral.

(3) Pumps may not be suspended above the bottom of the tank by chains or similar equipment.

(4) A disconnect shall be incorporated into the piping within the dosing tank for ease of pump removal.

(5) An effective warning device, as described in § 73.62(c) (relating to standards for holding tanks), shall be installed in the dosing tank to indicate failure of the pump or siphon. Electrically operated warning systems shall be on a circuit and breaker separate from the pump.

(6) A siphon or other discharge mechanism may be substituted for a pump where site conditions permit the use of a gravity flow device, if the average discharge rate of the device meets the requirements of paragraph (1).

(7) A copy of the performance curve of the pump or discharge specifications for the siphon to be used shall be attached to the system design. A copy of the manufacturer's specification showing that the pump is designed to handle sewage or sewage effluent shall also be attached to the system design.

(8) When an aeration tank is used which results in a periodic pump discharge from the treatment tank, the discharge mechanism may be substituted for a dosing tank and pump if the periodic discharge rate meets the criteria in subsections (a)(1) and (b)(2) and § 73.45(2) (relating to dosing tanks).

(9) Pumps or siphons serving systems having total absorption areas greater than 2,500 square feet shall have a minimum discharge capacity at least two times the estimated peak flow for the facility served.

(10) When an establishment produces more than 50% of its total daily flow during a peak flow period, the minimum dose volume shall equal the anticipated flow during the peak period.

(11) Pumps employed for the purpose of lifting effluent to a higher elevation may not be deemed dosing pumps when the system does not meet the criteria of § 73.43 (relating to pressurized distribution). Pumps for this purpose shall have a discharge capacity at least two times the estimated peak flow of the facility served when operating at designed level of head, but at least 5 gpm and shall be rated by the manufacturer for handling sewage effluent.

(12) Siphon discharge lines shall be equipped with an observation port. The access to the observation port shall be extended to grade, capped and secured to prevent unauthorized entry.

(b) Lift pumps shall meet the following specifications:

(1) Meet the standards in subsection (a)(1)—(5), (7) and (8).

(2) Be designed to discharge a minimum flood dose of 2 inches over the sand surface.

(c) Dosing pumps used to pressurize a spray field distribution system shall be designed in accordance with the specifications in subsection (a)(1)—(5) and (7).

#### Authority

The provisions of this § 73.46 amended under section 9 of the Pennsylvania Sewage Facilities Act (35 P. S. § 750.9); The Clean Streams Law (35 P. S. §§ 691.1—691.1001); and section 1920-A of The Administrative Code of 1929 (71 P. S. § 510-20).

#### Source

The provisions of this § 73.46 adopted August 2, 1971, effective August 14, 1971, 1 Pa.B. 1649; amended August 30, 1974, effective September 16, 1974, 4 Pa.B. 1805; amended January 21, 1983, effective January 22, 1983, 13 Pa.B. 508; amended November 7, 1997, effective November 8, 1997, 27 Pa.B. 5877. Immediately preceding text appears at serial pages (217330) to (217331).

**Cross References**

This section cited in 25 Pa. Code § 73.161 (relating to general); and 25 Pa. Code § 73.165 (relating to disinfection).

**§ 73.47. [Reserved].****Source**

The provisions of this § 73.47 adopted August 2, 1971, effective August 14, 1971, 1 Pa.B. 1649; amended August 30, 1974, effective September 16, 1974, 4 Pa.B. 1805; reserved January 21, 1983, effective January 22, 1983, 13 Pa.B. 508. Immediately preceding text appears at serial page (17848).

**CONSTRUCTION OF ABSORPTION AREAS****§ 73.51. General.**

(a) In all systems, if an absorption area is proposed, the top of the limiting zone shall be at least 4 feet below the bottom of the aggregate. Coarse aggregate used in the distribution system shall meet the requirements of the Department of Transportation specifications, Publication #408 (1994) section 703 available from the Department of Transportation. The size and grading of the aggregate shall meet AASHTO No. 57 requirements from a PADOT certified stockpile and shall be of Type B quality requirements.

(1) Where the depth to the top of the limiting zone is 60 inches or greater, the system shall be installed so that the bottom of the aggregate is a minimum of 4 feet above the limiting zone.

(2) Where the depth to the top of the limiting zone is less than 60 inches, an elevated sand mound is required. Isolation from the limiting zone shall be achieved as required by § 73.55(a)(3)—(5) (relating to elevated sand mounds).

(3) An absorption area may not be installed where less than 20 inches of suitable undisturbed mineral soil exists.

(4) When infiltration chambers or other devices which require no aggregate are used, adequate provisions to protect the infiltrative surfaces from damage by operation of pressure distribution systems shall be made.

(b) Before and after installation, equipment and vehicles shall be kept off the proposed absorption area, including the downslope area, to prevent undue compaction of the soil. Care shall be exercised during construction to prevent undue compaction and damage to the system and the downslope area.

(c) Soil moisture levels during construction of the absorption area shall be such that a sample of natural mineral soil taken from the level of the proposed installation will crumble if compressed into a ball.

**Authority**

The provisions of this § 73.51 amended under section 9 of the Pennsylvania Sewage Facilities Act (35 P. S. § 750.9); The Clean Streams Law (35 P. S. §§ 691.1—691.1001); and section 1920-A of The Administrative Code of 1929 (71 P. S. § 510-20).

**Source**

The provisions of this § 73.51 adopted August 2, 1971, effective August 14, 1971, 1 Pa.B. 1649; amended April 26, 1974, effective May 13, 1974, 4 Pa.B. 817; amended August 30, 1974, effective September 16, 1974, 4 Pa.B. 1805; amended January 21, 1983, effective January 22, 1983, 13 Pa.B. 508; amended November 7, 1997, effective November 8, 1997, 27 Pa.B. 5877. Immediately preceding text appears at serial pages (217331) to (217332).

**Cross References**

This section cited in 25 Pa. Code § 71.63 (relating to retaining tanks); and 25 Pa. Code § 73.54 (relating to subsurface sand filters).

**§ 73.52. Standard trenches.**

(a) *Design.* The maximum slope of the undisturbed soil of a proposed absorption area where a trench system may be permitted is 25%. For slopes between 15% and 25%, detailed design in relationship to elevation shall be provided. The designer shall inspect the installation and verify that, to the best of his knowledge and belief, the system was installed in accordance with the plans and specifications. Copies of the plans and specifications and the designer's report are to be attached to the applicant's copy, sewage enforcement officer's copy and the Department's copy of the application for sewage permit.

(b) *Construction.* Trenches in an absorption area shall be constructed in accordance with the following:

- (1) There shall be a minimum of two trenches per field.
- (2) Trenches shall follow approximately the ground surface contours so that variations in trench depth shall be minimized.
- (3) There shall be at least 6 feet of soil between the treatment tank or dosing tank and the nearest trench.
- (4) The width of the bottom of the individual trench shall be 12 to 72 inches.
- (5) The depth to the bottom of the absorption area shall be 12 to 36 inches.
- (6) The bottom of the absorption area shall be level to a tolerance of 2 inches per 100 feet.
- (7) The minimum width of undisturbed earth between trenches shall be 5 feet. When elevated sand mound trenches are used, the distance between trenches shall be measured from the toe of the sand of each trench.
- (8) The minimum depth of aggregate material under laterals shall be 6 inches.
- (9) Laterals shall be placed in the center of the trench. The first or last discharge hole of a lateral may be no more than 5 feet nor less than 2 feet from the ends of the trench.
- (10) Laterals shall be level to a maximum tolerance of 4 inches of fall per 100 feet toward the terminal end of the lateral.



- (11) The minimum depth of aggregate material over the laterals shall be 2 inches.
- (12) The depth of aggregate shall be uniform throughout the absorption area.
- (13) The top of the aggregate material shall be covered with geotextile fabric, untreated building paper or a 2-inch layer of hay, straw or similar material to prevent backfill material from settling into the aggregate.
- (14) The minimum depth of earth cover over the aggregate in all installations shall be 12 inches. Where the top of the aggregate is less than 12 inches from the undisturbed soil surface, the soil cover shall extend beyond the absorption area by at least 3 feet on all sides.
- (15) The backfill material shall consist of soil suitable for the growth of vegetation, and be seeded to control erosion.
- (16) Trench laterals shall be fitted with end caps.

#### Authority

The provisions of this § 73.52 amended under section 9 of the Pennsylvania Sewage Facilities Act (35 P. S. § 750.9); The Clean Streams Law (35 P. S. §§ 691.1—691.1001); and section 1920-A of The Administrative Code of 1929 (71 P. S. § 510-20).

#### Source

The provisions of this § 73.52 adopted August 2, 1971, effective August 14, 1971, 1 Pa.B. 1649; amended April 26, 1974, effective May 13, 1974, 4 Pa.B. 817; amended August 30, 1974, effective September 16, 1974, 4 Pa.B. 1805; amended January 21, 1983, effective January 22, 1983, 13 Pa.B. 508; amended November 7, 1997, effective November 8, 1997, 27 Pa.B. 5877. Immediately preceding text appears at serial pages (217332) to (217334).

#### Cross References

This section cited in 25 Pa. Code § 71.63 (relating to retaining tanks); 25 Pa. Code § 73.44 (relating to pressurized distribution design); 25 Pa. Code § 73.53 (relating to seepage beds); 25 Pa. Code § 73.54 (relating to subsurface sand filter beds and trenches); and 25 Pa. Code § 73.55 (relating to elevated sand mounds).

### § 73.53. Seepage beds.

Whenever seepage beds are employed, they shall meet the requirements of § 73.52(b)(5), (6), (8) and (10)—(16) (relating to standard trenches) in addition to the following specifications:

- (1) The maximum slope of the undisturbed soil of a proposed absorption area where a seepage bed may be permitted is 8.0%.
- (2) The required absorption area may be provided by one or more seepage beds:
  - (i) The individual beds of a single onlot system shall be separated by a minimum of 5 feet.
  - (ii) When elevated sand mound beds are used, the distance between beds shall be measured from the toe of the sand of each bed.

- (3) The bed shall contain a minimum of two laterals or two opposing sets of laterals when pressure distribution is used.
- (4) Laterals shall be equally spaced a maximum of 6 feet on center, except as provided in § 73.44(c)(8) (relating to pressurized distribution design).
- (5) Laterals shall be placed no further than 5 feet nor less than 2 feet from the sidewalls of the bed.
- (6) Laterals shall be placed in the bed so that the first and last discharge holes may be no more than 5 feet nor less than 2 feet from the ends of the bed.

#### Authority

The provisions of this § 73.53 amended under section 9 of the Pennsylvania Sewage Facilities Act (35 P. S. § 750.9); The Clean Streams Law (35 P. S. §§ 691.1—691.1001); and section 1920-A of The Administrative Code of 1929 (71 P. S. § 510-20).

#### Source

The provisions of this § 73.53 adopted January 21, 1983, effective January 22, 1983, 13 Pa.B. 508; amended November 7, 1997, effective November 8, 1997, 27 Pa.B. 5877. Immediately preceding text appears at serial page (217334).

#### Cross References

This section cited in 25 Pa. Code § 71.63 (relating to retaining tanks); 25 Pa. Code § 73.44 (relating to pressurized distribution design); 25 Pa. Code § 73.54 (relating to subsurface sand filters); and 25 Pa. Code § 73.55 (relating to elevated sand mounds).

### § 73.54. Subsurface sand filter beds and trenches.

- (a) *General.* Subsurface sand filters without underdrains shall meet the following criteria:
  - (1) Subsurface sand filters may not be utilized on soils where the limiting zone occurs at less than 6 feet below the mineral soil surface.
  - (2) The average percolation rate, as determined by § 73.15 (relating to percolation tests), shall be greater than 90 minutes per inch.
  - (3) The average percolation rate at a depth between 36 and 60 inches shall be within the range of 3—90 minutes per inch.
  - (4) The average percolation rate obtained from paragraph (3) shall be applied to § 73.16(c) (relating to absorption area requirements) for determination of the absorption area and other system requirements.
  - (5) System design shall meet the requirements of § 73.52 (relating to standard trenches) or § 73.53 (relating to seepage beds) except as modified by subsection (b).
- (b) *Construction.* Subsurface sand filters shall be constructed as follows:
  - (1) The maximum depth of the excavation shall be 5 feet.
  - (2) Sand meeting the specifications of § 73.55(c) (relating to sand specifications) shall be placed in the entire bed or trench to a minimum depth of 12 inches.

**Authority**

The provisions of this § 73.54 amended under section 9 of the Pennsylvania Sewage Facilities Act (35 P. S. § 750.9); The Clean Streams Law (35 P. S. §§ 691.1—691.1001); and section 1920-A of The Administrative Code of 1929 (71 P. S. § 510-20).

**Source**

The provisions of this § 73.54 adopted January 21, 1983, effective January 22, 1983, 13 Pa.B. 508; amended November 7, 1997, effective November 8, 1997, 27 Pa.B. 5877. Immediately preceding text appears at serial pages (217334) to (217335).

**Cross References**

This section cited in 25 Pa. Code § 71.63 (relating to retaining tanks).

**§ 73.55. Elevated sand mounds.****(a) Design.**

(1) The maximum slope of the undisturbed soil, to the extremities of the berm, of a proposed absorption area where elevated sand mound trenches may be permitted is 12%.

(2) The maximum slope of the undisturbed soil, to the extremities of the berm, of a proposed absorption area where an elevated sand mound bed may be permitted is 12%.

(3) The limiting zone is the base elevation for measuring the required depth of sand to achieve a minimum of 4 feet of satisfactory material between the bottom of the aggregate and the top of the limiting zone.

(4) A minimum of 1 foot of sand shall be placed under the aggregate in all elevated sand mound systems.

(5) Existing mineral soil shall be utilized. No mineral soil in the area of the elevated sand mound may be removed or disturbed for the purpose of adding or mixing fill material.

(6) Elevated sand mound trenches shall meet the requirements of § 73.52(b) (relating to standard trenches) and this section.

(7) Elevated sand mound beds on slopes up to 8% shall meet the requirements of § 73.53 (relating to seepage beds) and subsection (b). Other sand mound beds shall comply with subsection (d).

**(b) Construction.**

(1) Vegetation shall be cut close to the ground throughout the area to be utilized for the absorption area and berm. Bushes and trees shall be cut flush with the ground surface; roots shall be left in place. Cut vegetation or organic litter shall be raked and removed from the absorption and berm areas.

(2) The proposed absorption area not obstructed by stumps or other obstacles shall be roughed or plowed parallel with the contour to a maximum depth of 6 inches, using a multiple share chisel plow or similar implement attached to light-weight equipment. Rotary tilling is prohibited.

(3) Under no circumstances may equipment travel on the plowed soil surface until the sand is in place.

(4) Immediately after plowing, sand shall be placed over the exposed plowed surface. Sand shall be placed from the upslope side of the bed using only lightweight equipment.

(5) The slope of the sand not directly beneath the aggregate area shall be approximately 50%.

(6) The top of the sand directly beneath the aggregate shall be level to a tolerance of  $\pm 2$  inches per 100 feet.

(7) The mound shall be surrounded by a berm consisting of mineral soil containing less than 20% coarse fragments with no coarse fragments greater than 4 inches in diameter, more stable and less permeable than the sand, and lightly compacted during construction to contain and protect the mound interior. The width of this berm shall be a minimum of 3 feet at the top of the aggregate.

(8) Upon completion, the outside slope of the berm may be no greater than 50% and shall be seeded to assure the stability of the berm. The cover over the aggregate shall be a minimum of 1 foot of soil suitable for the growth of vegetation.

(9) No equipment may be permitted on the downslope side of the mound with the exception of lightweight equipment that is used to form the downslope berm. To the greatest extent possible, aggregate and the cover material shall be placed from the upslope side of the mound.

(10) When a mound system with trenches is used, the area between the individual trenches shall be filled with mineral soil. A minimum distance of 5 feet shall separate sand of individual trenches. This measurement shall be from the toe of the sand.

(11) The area surrounding the mound shall be grated to provide for diversion of surface runoff waters.

(c) *Sand.* Sand suppliers shall provide certification in writing to the sewage enforcement officer and permittee, with the first delivery to the job site from every sand source listing the amount of sand delivered, and that all sand supplied meets the requirements posted in the Department of Transportation specifications Publication #408, section 703. The size and grading shall meet bituminous concrete sand Type B #1 or #3 requirements from a Department of Transportation certified stockpile. The sieve analysis shall be conducted in accordance with PTM #616 and #100.

(d) *Elevated sand mound beds.* Elevated sand mound beds on slopes greater than 8% shall meet the requirements of § 73.53 and subsection (b). In addition, the following apply:

(1) The absorption area shall have a minimum length to width ratio of 4 to 1.

(2) The long axis of the absorption area shall be perpendicular to the slope. The bed construction shall follow the ground surface contours.

(3) Upon completion, the outside slope of the berm may be no greater than 33.3%.

(4) Designing the location of multiple absorption areas so that one absorption area is placed hydraulically upgradient or downgradient from the other may cause the lower absorption area to fail because of excessive hydraulic loading from the upper absorption area. Unless the potential for such an impact is shown to be nonexistent by the applicant through the alternative/experimental system process, this type of absorption area placement is prohibited.

#### Authority

The provisions of this § 73.55 amended under section 9 of the Pennsylvania Sewage Facilities Act (35 P. S. § 750.9); The Clean Streams Law (35 P. S. §§ 691.1—691.1001); and section 1920-A of The Administrative Code of 1929 (71 P. S. § 510-20).

#### Source

The provisions of this § 73.55 adopted January 21, 1983, effective January 22, 1983, 13 Pa.B. 508; amended November 7, 1997, effective November 8, 1997, 27 Pa.B. 5877. Immediately preceding text appears at serial pages (217335) to (217336).

#### Cross References

This section cited in 25 Pa. Code § 71.63 (relating to retaining tanks); 25 Pa. Code § 73.44 (relating to pressurized distribution design); 25 Pa. Code § 73.51 (relating to general); 25 Pa. Code § 73.54 (relating to subsurface sand filter beds and trenches); and 25 Pa. Code § 73.162 (relating to intermittent sand filters).

## RETAINING TANKS

### § 73.61. General.

Retaining tanks are individual sewage systems and require permits. They shall only be used where the Department finds and gives written notice to the approving body that the requirements of Chapter 71 (relating to administration of sewage facilities planning program) have been met.

#### Source

The provisions of this § 73.61 adopted August 2, 1971, effective August 14, 1971, 1 Pa.B. 1649; amended April 26, 1974, effective May 13, 1974, 4 Pa.B. 817; amended August 30, 1974, effective September 16, 1974, 4 Pa.B. 1805; amended January 21, 1983, effective January 22, 1983, 13 Pa.B. 508. Immediately preceding text appears at serial pages (17849) to (17850).

#### Cross References

This section cited in 25 Pa. Code § 73.11 (relating to general).

**§ 73.62. Standards for holding tanks.**

(a) A holding tank shall be constructed to meet the specifications of § 73.31(b)(1) (relating to standards for septic tanks).

(b) The minimum capacity of a holding tank is 1,000 gallons or a volume equal to the quantity of waste generated in 3 days, whichever is larger.

(c) The holding tank shall be equipped with a warning device to indicate when the tank is filled to within 75% of its capacity. The warning device shall create an audible and visual signal at a location frequented by the homeowner or responsible individual.

(d) Disposal of waste from a holding tank shall be at a site approved by the Department.

**Authority**

The provisions of this § 73.62 amended under section 9 of the Pennsylvania Sewage Facilities Act (35 P. S. § 750.9); The Clean Streams Law (35 P. S. §§ 691.1—691.1001); and section 1920-A of The Administrative Code of 1929 (71 P. S. § 510-20).

**Source**

The provisions of this § 73.62 adopted August 2, 1971, effective August 14, 1971, 1 Pa.B. 1649; amended April 26, 1974, effective May 13, 1974, 4 Pa.B. 817; amended August 30, 1974, effective September 16, 1974, 4 Pa.B. 1805; amended January 21, 1983, effective January 22, 1983, 13 Pa.B. 508; amended November 7, 1997, effective November 8, 1997, 27 Pa.B. 5877. Immediately preceding text appears at serial page (217337).

**Cross References**

This section cited in 25 Pa. Code § 73.11 (relating to general); and 25 Pa. Code § 73.46 (relating to dosing pumps).

**§ 73.63. Standards for privies.****(a) Location.**

(1) The privy shall be located so as to minimize any danger of contamination of water supplies. Where possible, the privy shall be downgrade and at least 50 feet from any source of water supply.

(2) The structure shall be accessible to the user, and at least 50 feet away from any building served.

(3) Consideration shall be given to the direction of prevailing winds to reduce odor nuisances.

**(b) Construction.**

(1) The superstructure shall be constructed of substantial materials.

(2) The vault shall be large enough to provide for several years' use and be constructed to meet the specifications of § 73.31(b) (relating to standards for septic tanks).

(3) The vault shall be equipped with a roof-ventilating stack that is screened to prevent entrance of flies.

(4) An exterior cleanout shall be provided for the vault.

- (5) The superstructure shall be flytight, well ventilated and fastened solidly to the vault.
- (6) The door shall be self-closing and provided with weatherstripping to make it insect proof.
- (7) The seat and cover shall be constructed of smooth and easily cleanable material, and the cover shall be self-closing.
- (8) An earth mound shall be placed around the privy, or a surface water diversion shall be constructed to keep surface water from flooding the vault.

**Source**

The provisions of this § 73.63 adopted August 2, 1971, effective August 14, 1971, 1 Pa.B. 1649; amended April 26, 1974, effective May 13, 1974, 4 Pa.B. 817; amended August 30, 1974, effective September 16, 1974, 4 Pa.B. 1805; amended January 21, 1983, effective January 22, 1983, 13 Pa.B. 508; corrected February 4, 1983, effective January 22, 1983, 13 Pa.B. 614. Immediately preceding text appears at serial page (71971).

**§ 73.64. Chemical toilet or other portable toilet.**

(a) When proposed for use at temporary construction sites, facilities providing temporary recreational or sporting activities (such as a special event) or temporary seasonal facilities other than those intended for human habitation, chemical toilets or other portable toilets may be exempt from the onlot permitting requirements of Chapter 72 (relating to administration of sewage facilities permitting program) at the discretion of the local agency but improper installation or maintenance of these toilets shall constitute a nuisance under section 14 of the act (35 P. S. § 750.14) and be enforceable by the local agency.

(b) If multiple chemical toilets or other portable toilets are proposed for temporary use at construction sites, recreational activities or seasonal facilities, all units proposed for installation shall be included under one permit.

**Authority**

The provisions of this § 73.64 amended under section 9 of the Pennsylvania Sewage Facilities Act (35 P. S. § 750.9); The Clean Streams Law (35 P. S. §§ 691.1—691.1001); and section 1920-A of The Administrative Code of 1929 (71 P. S. § 510-20).

**Source**

The provisions of this § 73.64 adopted August 2, 1971, effective August 14, 1971, 1 Pa.B. 1649; amended April 26, 1974, effective May 13, 1974, 4 Pa.B. 817; amended August 30, 1974, effective September 16, 1974, 4 Pa.B. 1805; amended January 21, 1983, effective January 22, 1983, 13 Pa.B. 508; amended November 7, 1997, effective November 8, 1997, 27 Pa.B. 5877. Immediately preceding text appears at serial page (217338).

**§ 73.65. Recycling toilet, incinerating toilet or composting toilet.**

(a) Recycling, incinerating and composting toilets shall bear the seal of the NSF indicating testing and approval by that agency under Standard No. 41.

(b) The device utilized shall meet the installation specifications of the manufacturer and shall be operated and maintained in a manner that will preclude any potential pollution or health hazards.

(c) When the installation of a recycling toilet, incinerating toilet or composting toilet is proposed for a new residence or establishment, an onlot sewage system or other approved method of sewage disposal shall be provided for treatment of washwater or excess liquid from the unit, except as provided in subsection (e). Both sewage disposal facilities shall be included under one permit.

(d) When the installation of a recycling toilet, incinerating toilet, composting toilet or another type of water conservation device is proposed for an existing residence or facility and no alteration of the onlot system is proposed, a permit is not required.

(e) When a composting toilet or incinerating toilet is proposed for installation on a lot meeting the requirements of § 71.63 (relating to retaining tanks), it shall be deemed equivalent to and permitted as a privy. The device shall be operated and maintained in accordance with the manufacturer's specifications. Discharges of liquids from these units, except to onlot sewage systems meeting the requirements of this part or other method of sewage disposal approved under this chapter or approved by the Department are prohibited.

#### Authority

The provisions of this § 73.65 amended under section 9 of the Pennsylvania Sewage Facilities Act (35 P. S. § 750.9); The Clean Streams Law (35 P. S. §§ 691.1—691.1001); and section 1920-A of The Administrative Code of 1929 (71 P. S. § 510-20).

#### Source

The provisions of this § 73.65 adopted August 30, 1974, effective September 16, 1974, 4 Pa.B. 1805; amended January 21, 1983, effective January 22, 1983, 13 Pa.B. 508; amended November 7, 1997, effective November 8, 1997, 27 Pa.B. 5877. Immediately preceding text appears at serial pages (217338) to (217339).

### § 73.66. [Reserved].

#### Source

The provisions of this § 73.66 adopted August 30, 1974, effective September 16, 1974, 4 Pa.B. 1805; reserved January 21, 1983, effective January 22, 1983, 13 Pa.B. 508. Immediately preceding text appears at serial page (17854).

## EXPERIMENTAL AND ALTERNATE SYSTEMS

### § 73.71. Experimental sewage systems.

(a) Experimental systems may be considered for individual or community systems in any of the following cases:

- (1) To solve an existing pollution or public health problem.



(2) To overcome specific site suitability deficiencies, or as a substitute for systems described in this chapter on suitable lots.

(3) To overcome specific engineering problems related to the site or its proposed uses.

(4) To evaluate new concepts or technologies applicable to onlot disposal.

(5) To evaluate the applicability to onlot disposal of established concepts or technologies having successful use in comparable applications in the field of engineering.

(6) To demonstrate a design having successful use in other jurisdictions under environmental conditions similar to or more restrictive than those in this Commonwealth.

(7) To utilize under varying site conditions an experimental design, either in whole or in part, which has been deemed successful by the Department.

(b) A person desiring to install an experimental sewage system or alter a component of an existing system using a method, technology or design determined to be experimental by the Department shall submit complete preliminary design plans and specifications to the sewage enforcement officer and the Department for review and comment prior to submitting an application for a permit. The Department will determine if classification as an experimental system, method, technology or design is appropriate for the submission and provide review comments to the sewage enforcement officer.

(c) The following criteria shall be considered in the design of experimental systems:

(1) The volume and rate of sewage flow, including reductions attributed to water conservation devices and recycling devices.

(2) The chemical and bacteriological characteristics of the flow, including the varying nature, if any, of the contributing sources.

(3) The treatment of the sewage flow, including, if appropriate:

(i) The type of treatment, that is aerobic, anaerobic, chemical, or other.

(ii) The degree and extent of treatment afforded, including the chemical and biological characteristics of the effluent.

(iii) The hydraulic design, including flow rates, retention time, settling rates, and sludge and scum storage.

(4) The materials of construction including durability and chemical resistance of all system components.

(5) The characteristics and limitations of the disposal site, including, if appropriate:

(i) The depth, composition and projected effects of any limiting zone identified through extensive onsite evaluation of the soils present.

(ii) The determination of the soil permeability through percolation tests, hydraulic conductivity tests or other acceptable testing procedures conducted on the site.

- (iii) The chemical and bacteriological characteristics of the subsurface or other waters.
  - (iv) The natural and modified slope of the disposal site and contiguous areas, with particular attention to downslope areas.
  - (v) The relationship of the disposal site to existing and proposed drainage patterns, including surface and subsurface flows.
  - (vi) The stability and renovative abilities of controlled fill areas.
- (6) The design of the absorption area, including:
- (i) Dimensions.
  - (ii) Method of distribution and hydraulic design considerations of the distribution system.
  - (iii) Rate of application.
  - (iv) Relationship to other sewage disposal systems or features, water supply sources, surface waters, recharge areas, rock outcrops and other site improvements.
  - (v) Determination of hydraulic loading limitations—that is, interface acceptance rate of hydraulic conductivity of receiving soils—in accordance with accepted principles of hydraulic flow.
- (7) The effect upon the groundwater, including:
- (i) Fecal coliform.
  - (ii) Chlorides.
  - (iii) Nitrates.
  - (iv) Nutrients.
  - (v) Other degrading material.
- (8) Other considerations as may be appropriate to comply with the act.
- (d) Except as provided in subsection (f), experimental designs will be approved for use only when it has been determined that an individual or community sewage disposal system meeting the requirements of this chapter or another successful experimental design, or that sewage services meeting the requirements of the Clean Streams Law and Article II (relating to water resources), may be installed if the experiment is deemed a failure.
- (e) Except as provided in subsection (f), monitoring, observation, testing or other requirements which are deemed necessary to verify the success of the experiment shall be required.
- (f) A replacement area, as specified in subsection (d), and monitoring as specified in subsection (e), may not be required where the experimental design is an attempt to solve an existing pollution or public health problem.
- (g) An application for an experimental system shall include the following:
- (1) Detailed plans and specifications sufficient to comply with this section.
  - (2) A description of the system, device or process; its capabilities; and scheduled maintenance, if any, which are necessary for continued function.

(3) The identity of the person responsible for the design of the system; performance of scheduled maintenance, if required; and responsibility for repair or replacement in event of failure of the system.

(h) Each application for an experimental system shall be accompanied by a statement acknowledging the requirement that the sewage enforcement officer be notified of any malfunction or modification of the original system design.

(i) Prior to issuing a permit for an experimental sewage system, the sewage enforcement officer shall consider the comments of the Department.

#### Authority

The provisions of this § 73.71 amended under section 9 of the Pennsylvania Sewage Facilities Act (35 P. S. § 750.9); The Clean Streams Law (35 P. S. §§ 691.1—691.1001); and section 1920-A of The Administrative Code of 1929 (71 P. S. § 510-20).

#### Source

The provisions of this § 73.71 adopted August 2, 1971, effective August 14, 1971, 1 Pa.B. 1649; amended April 26, 1974, effective May 13, 1974, 4 Pa.B. 817; amended August 30, 1974, effective September 16, 1974, 4 Pa.B. 1805; amended January 21, 1983, effective January 22, 1983, 13 Pa.B. 508; amended November 7, 1997, effective November 8, 1997, 27 Pa.B. 5877. Immediately preceding text appears at serial pages (217339) to (217341).

#### Notes of Decisions

For the construction of a sewage disposal system, the provisions of 25 Pa. Code § 73.11(c) (relating to overall requirements) and 25 Pa. Code § 73.71(b)(5) (relating to standard trenches) require at least six feet between the soil surface and the seasonal high water table. *Department of Environmental Resources v. Flynn*, 344 A.2d 720 (Pa. Cmwlth. 1975).

#### Cross References

This section cited in 25 Pa. Code § 73.3 (relating to policy).

### § 73.72. Alternate sewage systems.

(a) Alternate systems shall be considered for individual onlot or community onlot systems in any of the following cases:

(1) To solve an existing pollution or public health problem.

(2) To overcome specific site suitability deficiencies, or as a substitute for systems described in this chapter on suitable lots.

(3) To overcome specific engineering problems related to the site or its proposed use.

(4) To utilize under varying site conditions an experimental design, either in whole or in part, which has been deemed successful by the Department.

(b) A person desiring to install an alternate sewage system shall submit complete preliminary design plans and specifications to the sewage enforcement officer and the Department for review and comment prior to submitting an appli-

cation for a permit. The Department will determine if classification as an alternate system is appropriate and provide review comments to the sewage enforcement officer.

(c) The following criteria shall be considered in the design of alternate systems:

- (1) The volume and rate of sewage flow, including reductions attributed to water conservation devices and recycling devices.
- (2) The chemical and bacteriological characteristics of the flow, including the varying nature, if any, of the contributing sources.
- (3) The treatment of the sewage flow, including, if appropriate:
  - (i) The type of treatment—that is, aerobic, anaerobic, chemical or other.
  - (ii) The degree and extent of treatment afforded, including the chemical and biological characteristics of the effluent.
  - (iii) The hydraulic design, including flow rates, retention time, settling rates and sludge and scum storage.
- (4) Materials of construction, including durability and chemical resistance of all system components.
- (5) The characteristics and limitations of the disposal site, including, if appropriate:
  - (i) The depth, composition and projected effects of any limiting zone identified through extensive onsite evaluation of the soils present.
  - (ii) Determination of the soil permeability through percolation tests, hydraulic conductivity tests or other acceptable testing procedures conducted on the site.
  - (iii) The chemical and bacteriological characteristics of the subsurface or other waters.
  - (iv) The natural and modified slope of the disposal site and contiguous areas, with particular attention to downslope areas.
  - (v) The relationship of the disposal site to existing and proposed drainage patterns, including surface and subsurface flows.
  - (vi) The stability and renovative abilities of controlled fill areas.
- (6) The design of the absorption area including:
  - (i) Dimensions.
  - (ii) Method of distribution and hydraulic design considerations of the distribution system.
  - (iii) Rate of application.
  - (iv) Relationship to other sewage disposal systems or features, water supply sources, surface waters, recharge areas, rock outcrops and other site improvements.
  - (v) Determination of hydraulic loading limitations—that is, interface acceptance rate or hydraulic conductivity of receiving soils in accordance with accepted principles of hydraulic flow.

- (7) The effect upon the groundwater, including the following:
  - (i) Fecal coliform.
  - (ii) Chlorides.
  - (iii) Nitrates.
  - (iv) Nutrients.
  - (v) Other degrading material.
- (8) Other considerations as may be appropriate to comply with the act.
- (d) An application for an alternative system shall include the following:
  - (1) Detailed plans and specifications sufficient to comply with this section.
  - (2) A description of the system, device or process; its capabilities; and scheduled maintenance, if any, which is necessary for continued function.
  - (3) The identity of the person responsible for the design of the system and performance of scheduled maintenance, if required.
- (e) Each application for an alternative system shall be accompanied by a statement acknowledging the requirement that the sewage enforcement officer be notified of any malfunction or modification of the original system design.
- (f) Prior to issuing a permit for an alternative sewage system, the sewage enforcement officer shall consider the comments of the Department.

#### Authority

The provisions of this § 73.72 amended under section 9 of the Pennsylvania Sewage Facilities Act (35 P. S. § 750.9); The Clean Streams Law (35 P. S. §§ 691.1—691.1001); and section 1920-A of The Administrative Code of 1929 (71 P. S. § 510-20).

#### Source

The provisions of this § 73.72 adopted August 2, 1971, effective August 14, 1971, 1 Pa.B. 1649; amended April 26, 1974, effective May 13, 1974, 4 Pa.B. 817; amended August 30, 1974, effective September 16, 1974, 4 Pa.B. 1805; amended January 21, 1983, effective January 22, 1983, 13 Pa.B. 508; amended November 7, 1997, effective November 8, 1997, 27 Pa.B. 5877. Immediately preceding text appears at serial pages (217341) to (217342) and (221917).

#### Cross References

This section cited in 25 Pa. Code § 73.3 (relating to policy).

### § 73.73. [Reserved].

#### Source

The provisions of this § 73.73 adopted August 2, 1971, effective August 14, 1971, 1 Pa.B. 1649; amended April 26, 1974, effective May 13, 1974, 4 Pa.B. 817; amended August 30, 1974, effective September 16, 1974, 4 Pa.B. 1805; reserved January 21, 1983, effective January 22, 1983, 13 Pa.B. 508. Immediately preceding text appears at serial pages (30809) and (17858).

**§ 73.74. [Reserved].****Source**

The provisions of this § 73.74 adopted August 2, 1971, effective August 14, 1971, 1 Pa.B. 1649; amended April 26, 1974, effective May 13, 1974, 4 Pa.B. 817; amended August 30, 1974, effective September 16, 1974, 4 Pa.B. 1805; reserved January 21, 1983, effective January 22, 1983, 13 Pa.B. 508. Immediately preceding text appears at serial pages (17858) to (17859).

**§ 73.75. [Reserved].****Source**

The provisions of this § 73.75 adopted August 2, 1971, effective August 14, 1971, 1 Pa.B. 1649; amended April 26, 1974, effective May 13, 1974, 4 Pa.B. 817; reserved August 30, 1974, effective September 16, 1974, 4 Pa.B. 1805. Immediately preceding text appears at serial pages (4404) to (4405).

**§ 73.76. [Reserved].****Source**

The provisions of this § 73.76 adopted August 2, 1971, effective August 14, 1971, 1 Pa.B. 1649; amended April 26, 1974, effective May 13, 1974, 4 Pa.B. 817; reserved August 30, 1974, effective September 16, 1974, 4 Pa.B. 1805. Immediately preceding text appears at serial page (4405).

**BONDED DISPOSAL SYSTEM****§ 73.77. General requirements for bonded disposal systems.**

(a) The local agency shall authorize the performance of a percolation test, at the owner's expense, when one is requested in writing by the owner of the property if the local agency determines soil mottling is present.

(b) If the sole reason for a property not meeting the requirements for the installation of an individual residential onlot sewage system is the presence of soil mottling, the local agency shall issue a permit for an individual residential onlot sewage system designed to meet the Department's standards when the property owner meets the following conditions:

(1) A qualified soil scientist, qualified registered professional geologist, certified sewage enforcement officer or qualified registered professional engineer, not employed by the local agency with jurisdiction over the property in question, confirms in writing that the soil mottling observed in the test pits is not an indication of either a regional or perched seasonal high water table.

(2) The property owner provides evidence of financial assurance satisfactory to the local agency in an amount equal to the cost of replacement of the individual residential sewage system proposed and the reasonably anticipated cost of remedial measures to clean up contaminated groundwater to replace any contaminated water supplies and to repair or replace a malfunction of the onlot system. The local agency may not approve financial assurance in an amount

less than \$20,000 or 15% of the appraised value of the lot and proposed residential dwelling. The terms of the financial assurances shall be for up to 3 years. The local agency may require a continuation of up to 2 additional years of financial assurance. The local agency may terminate the financial assurance requirement at the end of its term consistent with the act.

(3) The property owner provides notification to the local agency 7 working days prior to conducting soil evaluations under this section and a representative of the local agency may observe the soil evaluations and may review resulting reports and correspondence.

(4) The property owner produces evidence of a clause in the deed to the property that clearly indicates soil mottling is present on the property and that an individual residential onlot sewage system meeting the requirements of this section was installed on the property.

#### Authority

The provisions of this § 73.77 issued under sections 7.2 and 9 of the Pennsylvania Sewage Facilities Act (35 P. S. §§ 750.7b and 750.9); The Clean Streams Act (35 P. S. §§ 691.1—691.1001); and section 1920-A of The Administrative Code of 1929 (71 P. S. § 510-20).

#### Source

The provisions of this § 73.77 adopted November 1, 1996, effective November 2, 1996, 26 Pa.B. 5347.

#### Cross References

This section cited in 25 Pa. Code § 72.21 (relating to general); 25 Pa. Code § 72.42 (relating to powers and duties of local agencies); 25 Pa. Code § 73.14 (relating to site investigation); and 25 Pa. Code § 73.151 (relating to standards for financial assurances).

### § 73.81. [Reserved].

#### Source

The provisions of this § 73.81 adopted August 2, 1971, effective August 14, 1971, 1 Pa.B. 1649; amended April 26, 1974, effective May 13, 1974, 4 Pa.B. 817; amended August 30, 1974, effective September 16, 1974, 4 Pa.B. 1805; reserved January 21, 1983, effective January 22, 1983, 13 Pa.B. 508. Immediately preceding text appears at serial page (17859).

### § 73.82. [Reserved].

#### Source

The provisions of this § 73.82 adopted August 2, 1971, effective August 14, 1971, 1 Pa.B. 1649; amended April 26, 1974, effective May 13, 1974, 4 Pa.B. 817; amended August 30, 1974, effective September 16, 1974, 4 Pa.B. 1805; reserved January 21, 1983, effective January 22, 1983, 13 Pa.B. 508. Immediately preceding text appears at serial page (17859).

**§ 73.83. [Reserved].****Source**

The provisions of this § 73.83 adopted August 2, 1971, effective August 14, 1971, 1 Pa.B. 1649; amended April 26, 1974, effective May 13, 1974, 4 Pa.B. 817; amended August 30, 1974, effective September 16, 1974, 4 Pa.B. 1805; reserved January 21, 1983, effective January 22, 1983, 13 Pa.B. 508. Immediately preceding text appears at serial pages (17859) and (47886).

**§ 73.84. [Reserved].****Source**

The provisions of this § 73.84 adopted August 2, 1971, effective August 14, 1971, 1 Pa.B. 1649; amended April 26, 1974, effective May 13, 1974, 4 Pa.B. 817; amended August 30, 1974, effective September 16, 1974, 4 Pa.B. 1805; reserved January 21, 1983, effective January 22, 1983, 13 Pa.B. 508. Immediately preceding text appears at serial page (47886).

**§ 73.91. [Reserved].****Source**

The provisions of this § 73.91 adopted August 2, 1971, effective August 14, 1971, 1 Pa.B. 1649; amended April 26, 1974, effective May 13, 1974, 4 Pa.B. 817; amended August 30, 1974, effective September 16, 1974, 4 Pa.B. 1805; reserved January 21, 1983, effective January 22, 1983, 13 Pa.B. 508. Immediately preceding text appears at serial pages (47886) to (47887) and (17862).

**§ 73.101. [Reserved].****Source**

The provisions of this § 73.101 adopted August 30, 1974, effective September 16, 1974, 4 Pa.B. 1805; reserved January 21, 1983, effective January 22, 1983, 13 Pa.B. 508. Immediately preceding text appears at serial pages (17862) to (17863).

**§ 73.111. [Reserved].****Source**

The provisions of this § 73.111 adopted August 30, 1974, effective September 16, 1974, 4 Pa.B. 1805; reserved January 21, 1983, effective January 22, 1983, 13 Pa.B. 508. Immediately preceding text appears at serial pages (17863) to (17864).

**§ 73.121. [Reserved].****Source**

The provisions of this § 73.121 adopted August 30, 1974, effective September 16, 1974, 4 Pa.B. 1805; reserved January 21, 1983, effective January 22, 1983, 13 Pa.B. 508. Immediately preceding text appears at serial pages (17865) to (17866).



**§ 73.131. [Reserved].****Source**

The provisions of this § 73.131 adopted August 30, 1974, effective September 16, 1974, 4 Pa.B. 1805; reserved January 21, 1983, effective January 22, 1983, 13 Pa.B. 508. Immediately preceding text appears at serial page (17866).

**§ 73.141. [Reserved].****Source**

The provisions of this § 73.141 adopted August 30, 1974, effective September 16, 1974, 4 Pa.B. 1805; reserved January 21, 1983, effective January 22, 1983, 13 Pa.B. 508. Immediately preceding text appears at serial pages (17866) to (17867).

**§ 73.151. Standards for financial assurances.**

(a) Financial assurance shall be sufficient to meet the requirements of section 7.2 of the act (35 P. S. § 750.7b).

(b) The local agency may establish an amount of financial assurance above the minimum established by § 73.77(b)(2) (relating to general requirements for bonded disposal systems).

(c) A local agency may accept forms of financial assurance that establish, to the satisfaction of the local agency, its full and unconditional right to demand and receive any sum due it under section 7.2 of the act. A local agency may authorize a property owner to use the financial assurance for the sole purpose of repair or replacement of the onlot system, for remedial measures to clean up contaminated groundwater and to replace contaminated water supplies.

(d) The local agency will forfeit the financial assurance when it determines that one or more of the following apply:

- (1) The property owner has violated or continues to violate one or more of the terms or conditions pertaining to the financial assurance.
- (2) The system has malfunctioned.
- (3) The permittee has violated a condition of the permit or submitted false information.
- (4) The property owner or permittee has failed to properly perform the remedial action required.

**Authority**

The provisions of this § 73.151 issued under sections 7.2 and 9 of the Pennsylvania Sewage Facilities Act (35 P. S. §§ 750.7b and 750.9); The Clean Streams Act (35 P. S. §§ 691.1—691.1001); and section 1920-A of The Administrative Code of 1929 (71 P. S. § 510-20).

**Source**

The provisions of this § 73.151 adopted November 1, 1996, effective November 2, 1996, 26 Pa.B. 5347.

**Cross References**

This section cited in 25 Pa. Code § 72.42 (relating to powers and duties of local agencies); and 25 Pa. Code § 72.42 (relating to powers and duties of local agencies).

**INDIVIDUAL RESIDENTIAL SPRAY IRRIGATION SYSTEM  
STANDARDS****§ 73.161. General.**

(a) Copies of the plans and specifications along with the designer's report shall be attached to the applicant's copy, local agency's copy and the Department's copy of the application for sewage permit.

(b) Standards for individual residential spray irrigation systems described in the following sections shall also be met: §§ 73.1, 73.12—73.14, 73.16, 73.17, 73.21, 73.31, 73.32, 73.41 and 73.43.

**Authority**

The provisions of this § 73.161 issued under section 9 of the Pennsylvania Sewage Facilities Act (35 P. S. § 750.9); The Clean Streams Law (35 P. S. §§ 691.1—691.1001); and section 1920-A of The Administrative Code of 1929 (71 P. S. § 510-20).

**Source**

The provisions of this § 73.161 adopted November 7, 1997, effective November 8, 1997, 27 Pa.B. 5877.

**§ 73.162. Intermittent sand filters.**

(a) There are two types of intermittent sand filters available for use with individual residential spray irrigation systems. The standards for free access sand filters and buried sand filters are included in this section.

(b) Free access sand filters shall meet the following standards:

(1) *Filter.* The filter shall be constructed in a tank meeting the following specifications:

(i) The surface area of a filter tank shall be a minimum of 40 square feet for systems using an aerobic treatment tank and serving a single family residence of three bedrooms or less. The filter area shall be increased by 10 square feet for each additional bedroom over three.

(ii) Systems proposing the use of a septic tank to serve a single family dwelling of three bedrooms or less shall be designed using two filter tanks or a single tank with two chambers. Each tank or chamber shall have a surface area of 40 square feet. The filter area of each filter shall be increased by 10 square feet for each additional bedroom over three.

(iii) Tanks shall be watertight and made of a sound, durable material which is not subject to excessive corrosion or decay.

(iv) Concrete tanks shall have a minimum wall thickness of 2 1/2 inches and be adequately reinforced.

(v) If precast slabs are used as tank tops to support the access covers, the slabs shall have a thickness of at least 3 inches and be adequately reinforced.

(vi) Tanks shall be designed and constructed so that the depth from the cover to the top of the sand layer provides sufficient freeboard to allow for maintenance of the sand surface.

(vii) Access shall be provided by a minimum of two access openings. These access openings shall be a minimum of 36 inches by 36 inches and provide access to the entire surface of the filter.

(viii) The tank wall shall be extended a minimum of 6 inches above final grade.

(ix) Access covers shall be insulated against severe weather, secured by bolts or locking mechanisms, prevent water infiltration and the entrance of debris, and be lightweight to facilitate routine maintenance.

(2) *Media.* Sand suppliers shall provide certification, in writing to the sewage enforcement officer and permittee, with the first delivery to the job site, that the sand to be supplied meets the following specifications:

(i) The fine aggregate shall have an effective size of between 0.3 to 0.6 mm, a uniformity coefficient of less than 3.5 and less than 4% of the coarse aggregate passing the #100 sieve. The sieve analysis shall be conducted in accordance with Department of Transportation PTM #616 and the uniformity coefficient shall be determined by using Department of Transportation PTM #149.

(ii) The sand may not contain more than 15% by weight deleterious material as determined by Department of Transportation PTM #510.

(3) *Contents of certification.* The written certification shall include the name of the supplier, the testing results, the testing date, the amount of material purchased under this certification and the delivery date.

(4) *Construction.* The sand filter shall be constructed according to the following standards:

(i) A 4-inch diameter perforated underdrain pipe with a minimum 2,500 pound crush test specification shall be placed on the bottom of the tank.

(ii) Two rows of perforations between 1/2 to 3/4 inch in diameter shall be drilled in the underdrain pipe at 6 inch intervals and the pipe shall be placed so the perforations face downward and the rows are approximately 45° from each other.

(iii) Aggregate shall be placed around the underdrain to a total depth of 5 inches from the bottom of the tank. Coarse aggregate used in the underdrains and distribution system shall meet the Type B requirements posted in the Department of Transportation specifications Publication #408, section

703, Table B and uniform size and grading of the aggregate shall meet AASHTO No. 57 requirements, as described in Form 408, section 703.2, Table C from a Department of Transportation certified stockpile.

(iv) A minimum depth of 4 inches of aggregate shall be placed over the aggregate underdrain material. Coarse aggregate used in the transition layer shall meet the Type B requirements posted in the Department of Transportation specifications Publication #408, section 703, Table B. The size and grading shall meet AASHTO No. 8 requirements, as described in Form 408, section 703.2, Table C from a Department of Transportation certified stockpile.

(v) Sand shall be placed over the aggregate to a depth of at least 24 inches.

(vi) The sand in the filter may not be greater than 36 inches deep.

(vii) The central distribution system shall be designed and installed to convey a minimum 2 inch flood dose of effluent to the surface of the sand filter. A high water alarm shall be installed in the filter tank which produces an audible and visual alarm when effluent backs up on the filter surface to 12 inches above the surface of the sand.

(viii) When two filters or chambers are required to treat septic tank effluent, the duplicate units shall, at the discretion of the designer, be flooded alternately, periodically by using valves, or simultaneously.

(ix) The central distribution piping may not be more than 2 inches in diameter.

(x) The height of the central distribution system's effluent outlet above the sand surface shall allow for the installation of a splash plate and the maximum flooding depth of the sand filter.

(xi) A concrete splash plate or other suitable material shall be located under each effluent outlet to prevent scouring of the sand surface. Movement of the splash plate during the flooding operation shall be prevented.

(c) Buried sand filters shall meet the following standards:

(1) *Location.*

(i) When buried sand filters are proposed to be installed in areas where bedrock is encountered above the proposed depth of the sand filter, or where the seasonal high groundwater table rises above the proposed depth of the sand filter, the designer should consider measures to prevent filter and liner damage and groundwater infiltration.

(ii) A buried sand filter may not be constructed in unstabilized fill.

(2) *Size.*

(i) The size of the sand filter shall be determined on the basis of the appropriate application rate and the estimated daily sewage flow in accordance with § 73.16(a) (relating to absorption area requirements) but the sand filter area shall be at least 300 square feet for use with either an aerobic treatment tank or septic tank with solids retainers units.

(ii) For a single family residence, the minimum sand filter area shall be based on a maximum hydraulic loading of 1.15 square feet per gallon per day.

(iii) Where aerobic treatment precedes the sand filter, a 1/3 reduction to the filter area may be used to size the filter.

(3) *Media.*

(i) At least 2 inches of clean aggregate meeting subsection (b)(4)(iii) shall surround underdrains and distribution pipes. A minimum of 4 inches of aggregate meeting subsection (b)(4)(iv) shall be placed over the underdrain. A layer of porous geotextile material may be placed on top of both layers of aggregate to prevent migration of soil or sand into the aggregate.

(ii) At least 24 inches of clean sand shall be placed over the underdrain aggregate. The sand shall meet the specifications in § 73.55(c) (relating to elevated sand mounds).

(iii) The minimum depth of earth cover over the coarse aggregate in all installations shall be 12 inches. When the top of the aggregate is less than 12 inches from the undisturbed soil surface, the soil cover shall extend beyond the filter area by at least 3 feet on all sides. The soil over the sand filter shall be so graded that surface water will run off, consist of soil suitable for the growth of vegetation and be seeded to control erosion.

(4) *Underdrain piping.*

(i) Underdrain piping shall be laid on a grade of 3 to 6 inches per 100 feet sloped to the outfall pipe.

(ii) Underdrain piping shall be positioned between the distribution laterals to maximize effluent travel through the filter sand.

(iii) Underdrain piping holes shall be equal or greater in number and size to the distribution piping holes.

(iv) Underdrain piping shall have two rows of holes placed at approximately 45° angle from each other along the bottom half of the pipe.

(v) The outfall pipe from the underdrain header shall have an antiseep collar and bentonite clay plug or a leak proof boot sealed as per manufacturer's instructions to the subsurface sand filter liner.

(5) *Filter base and liner.* The base of the filter shall be sloped to the underdrain pipe a maximum of 1%. An impervious liner of hypalon, polyvinyl chloride or polyethylene sheeting of 20 millimeter thickness or equal shall be installed on a tamped earth base to prevent seepage to the groundwater. A concrete bottom and sides may also be used at the discretion of the designer. A 2-inch layer of sand or a layer of 10 ounce porous geotextile material shall be provided on each side of the liner to prevent punctures and tears. Seams shall be made according to manufacturer's specifications.

(6) *Distribution of effluent.* Distribution of effluent to the buried sand filter shall meet the requirements of §§ 73.44—73.46 (relating to pressurized distribution design; dosing tanks; and dosing pumps).

**Authority**

The provisions of this § 73.162 issued under section 9 of the Pennsylvania Sewage Facilities Act (35 P. S. § 750.9); The Clean Streams Law (35 P. S. §§ 691.1—691.1001); and section 1920-A of The Administrative Code of 1929 (71 P. S. § 510-20).

**Source**

The provisions of this § 73.162 adopted November 7, 1997, effective November 8, 1997, 27 Pa.B. 5877.

**§ 73.163. Spray fields.**

- (a) The maximum slope of the undisturbed soil where a spray field may be permitted is 25%.
- (b) Individual residential spray irrigation system spray fields are not permitted on:
  - (1) Soils with evidence of a seasonal high water table at less than 10 inches from the surface.
  - (2) Soils with rock formations at less than 16 inches from the surface.
  - (3) Floodplain soils or floodprone areas unless any required encroachment permits have been obtained from the Department and the encroachment is in compliance with local ordinances pertaining to flood areas.
  - (4) Agricultural areas in active production of food for human consumption.
- (c) Slopes shall be as follows:
  - (1) Open, grassed areas—limited to 12%.
  - (2) Forested areas—limited to 25%.
  - (3) Nonfood producing agricultural areas—limited to 4%
- (d) Spray field sizing based upon soils characteristics shall be in accordance with Table B in § 73.16(e) (relating to absorption area and spray field requirements).
- (e) Construction shall be as follows:
  - (1) The area upslope of the spray field shall be graded or bermed to divert upland drainage from the spray field site.
  - (2) The downslope portion of the permitted spray field shall be graded or bermed to retain effluent on the permitted spray site.
  - (3) The permitted spray field shall be covered with vegetation.
  - (4) Construction activity within the spray field site shall be conducted in a manner which will minimize earth disturbance and compaction.

**Authority**

The provisions of this § 73.163 issued under section 9 of the Pennsylvania Sewage Facilities Act (35 P. S. § 750.9); The Clean Streams Law (35 P. S. §§ 691.1—691.1001); and section 1920-A of The Administrative Code of 1929 (71 P. S. § 510-20).

**Source**

The provisions of this § 73.163 adopted November 7, 1997, effective November 8, 1997, 27 Pa.B. 5877.

**§ 73.164. Chlorine contact/storage tanks.**

(a) The minimum liquid capacity of an individual residential spray irrigation system storage tank serving a three bedroom dwelling, excluding chlorine contact volume, is 2,000 gallons. The tank size shall be increased an additional 500 gallons for each additional bedroom over three. Additional increases in size may be required where more than 5 days storage is needed due to climatic conditions or when spray fields are located in floodplain or floodprone areas.

(b) Storage tanks used in individual residential spray irrigation systems shall meet the construction standards in § 73.45(1) and (4)—(6) (relating to dose tank). When more than one tank is used, the tanks shall be connected together at the bottom to equalize the liquid level in the tanks.

**Authority**

The provisions of this § 73.164 issued under section 9 of the Pennsylvania Sewage Facilities Act (35 P. S. § 750.9); The Clean Streams Law (35 P. S. §§ 691.1—691.1001); and section 1920-A of The Administrative Code of 1929 (71 P. S. § 510-20).

**Source**

The provisions of this § 73.164 adopted November 7, 1997, effective November 8, 1997, 27 Pa.B. 5877.

**§ 73.165. Disinfection.**

(a) Disinfection of effluent is required prior to spraying. The disinfection shall be by chlorination and shall produce an effluent which will contain a concentration not greater than 200 fecal coliform organisms per 100 milliliters in a single sample. Disinfection units shall be installed in accordance with the manufacturer's specifications. Disinfection units shall be reliable, able to disinfect sewage effluent and be easily maintained by the property owner.

(b) A chlorinator shall be designed to maintain a chlorine residual of 0.2 PPM to 2 PPM and provide for a 30 minute contact time.

(1) When an erosion chlorinator is proposed, the base of the unit may be placed no deeper than 36 inches below finished grade.

(2) When a lift pump is used to keep the unit no deeper than 36 inches below finished grade, the pump shall have a discharge rate that does not exceed the manufacturer's specifications for the erosion chlorinator and shall meet the appropriate specification of § 73.46 (relating to dosing pumps, siphons and lift pumps).

(3) Chlorine contact time may be obtained using a separate chlorine contact tank or in-line chlorination followed by the storage tank.

(4) Chlorinators shall be housed separately from chlorine contact tanks or storage tanks unless the tanks are specifically designed to house chlorinators.

**Authority**

The provisions of this § 73.165 issued under section 9 of the Pennsylvania Sewage Facilities Act (35 P. S. § 750.9); The Clean Streams Law (35 P. S. §§ 691.1—691.1001); and section 1920-A of The Administrative Code of 1929 (71 P. S. § 510-20).

**Source**

The provisions of this § 73.165 adopted November 7, 1997, effective November 8, 1997, 27 Pa.B. 5877.

**§ 73.166. Design of pressure distribution for individual residential spray irrigation systems.**

(a) Design of pressure distribution in an individual residential spray irrigation system shall comply with the following:

- (1) Conveyance of effluent from the storage tank to the spray field shall be through a delivery pipe sized to minimize friction loss.
- (2) Check valves shall be prohibited on delivery lines. Air relief valves may be placed at high points in the delivery lines to prevent air locks.
- (3) The delivery line and laterals shall be designed so that the effluent will drain back to the storage tank or otherwise designed to prevent freezing of the lines and sprinkler heads.
- (4) Individual laterals shall be sized to minimize friction loss. The hydraulic loss (friction and elevation changes) within a lateral shall be less than 20 % of the operating head of the sprinklers.
- (5) Design of laterals should include consideration of measures to prevent freezing of lines.
- (6) Spacing of laterals and sprinklers shall provide for distribution of the effluent over the spray field using a design nozzle pattern that does not overlap adjacent spray nozzle wetted perimeters.
- (7) Design of the spray field shall be based on the manufacturer's sprinkler specifications listing operating head, wetted diameter, nozzle size and discharge rate which shall be attached to the system design.
- (8) Sprinklers shall be installed on risers 18 inches to 5 feet above grade level.
- (9) Sprinklers shall be kept clear of obstructing vegetation for a radius of 5 feet.
- (10) The design head of the sprinkler may not exceed the manufacturer's specifications for each system component.
- (11) The minimum pump capacity shall equal the total discharge from all sprinklers when operating at design head.
- (12) Total pump head shall be calculated by addition of all losses incurred due to elevation changes, pipe and fitting friction losses and the design head of the sprinkler.



(13) The effluent shall be discharged to the spray field once per day. A manual override shall be installed in the system to allow interruption of this spray cycle when weather conditions are not conducive to spraying.

(14) The permittee shall conduct a test pressurization of the completed spray field in the presence of the sewage enforcement officer prior to covering the piping system from view. During the test, the sewage enforcement officer shall confirm that all joints are water tight, the design head is achieved and the manual override is functional.

#### Authority

The provisions of this § 73.166 issued under section 9 of the Pennsylvania Sewage Facilities Act (35 P. S. § 750.9); The Clean Streams Law (35 P. S. §§ 691.1—691.1001); and section 1920-A of The Administrative Code of 1929 (71 P. S. § 510-20).

#### Source

The provisions of this § 73.166 adopted November 7, 1997, effective November 8, 1997, 27 Pa.B. 5877.

### § 73.167. Operation and maintenance.

Individual residential spray irrigation systems require periodic maintenance by the property owner and entity established under § 72.25(h) (relating to permit requirements for operation and maintenance of individual residential spray irrigation systems). Without proper maintenance, system components will fail and pollution or a public health hazard will occur. This may result in costly repairs and civil penalties. The system designer shall provide an operation and maintenance manual, which may be supplemented with manufacturer's manuals and instructions, to the permittee that includes, as a minimum, the following required standards for operation and maintenance to be met by the permittee:

(1) Septic tanks, dosing tanks, lift pump tanks and chlorine contact/storage tanks shall be inspected every 6 months for structural integrity of the tank, inlet and outlet baffles, solids retainer, pumps, siphons and electrical connections.

(2) Aerobic tanks shall be inspected every 6 months for structural integrity of the tank, inlets and outlet baffles, buoyed solids retainer, pumps, siphons and electrical connections. The inspection and concurrent pumping of excess solids shall be conducted in accordance with manufacturer's and NSF requirements.

(3) Free access sand filters, buried sand filters, chlorinators, the pressurized spray irrigation plumbing and spray nozzles and the spray fields shall be inspected periodically by the property owner and every 6 months by the maintenance entity established under § 72.25(h). Each component shall be inspected for compliance with the following standards:

(i) Chlorine residual sampled after the contact/retention tank shall be maintained at a concentration of at least 0.2 PPM.

(ii) The chlorinator shall be functioning within the specifications of the manufacturer. Bridging of chlorine tablets may not be occurring.

(iii) Solids may not be accumulated on the surface of the sand in the free access sand filter nor may 12 inches to effluent be ponded over the sand. The high water alarm shall be functional.

(iv) The surface of the free access sand shall be raked and porous and any sand removed shall be replaced with sufficient clean sand to maintain the depth at a minimum of 24 inches.

(v) The plumbing in the free access sand filter tank shall be functional and free of leaks and splash plates shall be in place.

(vi) The free access sand filter tank and cover shall be structurally sound and unauthorized access equipment shall be in place. Insulation shall be in place.

(vii) The areas of the buried sand filter shall be free of ponded effluent and downgradient seepage.

(viii) The plumbing to the spray field shall be functional and free of leaks.

(ix) The spray nozzles shall be functioning within the design specifications and the extent of the designed wetted perimeter and each nozzle.

(4) A laboratory shall test the discharge to the system for fecal coliforms, carbonaceous biological oxygen demand (CBOD), suspended solids and chlorine residual to determine compliance with Chapter 72 (relating to the administration of sewage facilities permitting program). At least annually, a copy of the tests results along with the most recent inspection of the system by the maintenance entity established under § 72.25(h) shall be sent to the local agency.

#### **Authority**

The provisions of this § 73.167 issued under section 9 of the Pennsylvania Sewage Facilities Act (35 P. S. § 750.9); The Clean Streams Law (35 P. S. §§ 691.1—691.1001); and section 1920-A of The Administrative Code of 1929 (71 P. S. § 510-20).

#### **Source**

The provisions of this § 73.167 adopted November 7, 1997, effective November 8, 1997, 27 Pa.B. 5877.

#### **Cross References**

This section cited in 25 Pa. Code § 71.63 (relating to retaining tanks); 25 Pa. Code § 72.25 (relating to issuance of permits); and 25 Pa. Code § 72.42 (relating to powers and duties of local agencies).

**APPENDIX A****[Reserved]****Source**

The provisions of this Appendix A adopted August 2, 1971, effective August 14, 1971, 1 Pa.B. 1649; amended August 30, 1974, effective September 16, 1974, 4 Pa.B. 1805; reserved January 21, 1983, effective January 22, 1983, 13 Pa.B. 508. Immediately preceding text appears at serial page (17868).

**APPENDIX B****[Reserved]****Source**

The provisions of this Appendix B adopted August 2, 1971, effective August 14, 1971, 1 Pa.B. 1649; amended August 30, 1974, effective September 16, 1974, 4 Pa.B. 1805; reserved January 21, 1983, effective January 22, 1983, 13 Pa.B. 508. Immediately preceding text appears at serial pages (17869) to (17877).

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