Commonwealth of Pennsylvania
Department of Environmental Protection (DEP)
Bureau of Clean Water

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Technology: Leaching Chambers

Classification Type: Alternate technology (#A2014-0016-0003)

Classification Date: February 6, 2004 (ASG), February 24, 2014, XXXX, XX, 2026.

In accordance with 25 Pa. Code, Chapter 73, Section 73.72, DEP classifies the leaching chambers identified in this Listing as approved alternate on-lot sewage treatment system components. This classification permits the use of leaching chambers as part of a treatment system for the specific purpose of distributing sewage effluent onto an absorption area at either the primary treatment level (exceeding 30 mg/l CBOD5 and exceeding 30 mg/l TSS), the secondary treatment level (not exceeding 30 mg/l CBOD5 and not exceeding 30 mg/l TSS) or at the advanced treatment level (not exceeding 10 mg/l CBOD5 and not exceeding 10 mg/l TSS).

I. Technology Description

Leaching chambers are modular, high-density plastic units designed for use as a component of an on-lot sewage treatment system absorption area. Each chamber has a dome-shaped cross-section that provides an open, unobstructed area for the uniform distribution of effluent across the infiltrative surface of the soil. The chambers are installed in rows within the absorption area and covered with approved backfill material. This configuration promotes efficient subsurface infiltration while maintaining structural integrity under soil loads. Leaching chambers are an approved alternative to aggregate media for effluent dispersal in many on-lot system designs. Their use must comply with applicable regulatory requirements and system design criteria. Verification of suitability for the proposed system should be completed prior to design submission and installation.

II. Design Requirements

A. Location: Leaching chambers may be used as part of an on-lot sewage system installed for the dispersal of domestic strength wastewater (as defined in *Miscellaneous Data to be used in Conjunction with PA DEP Listings*) serving new construction or as a repair system to replace a malfunction on-lot system. Leaching chambers may only be utilized on sites with limiting zones at depths of 20 inches or greater.

B. Absorption Area Sizing:

Leaching chamber ratings described by Table 1 and Table 2 are used to properly size systems. The reduction in area allowed only pertains to the absorption area directly beneath the leaching chamber. Thus, the area between the chambers is not included in calculating the absorption area (see Appendix I: Absorption Area Sizing Guidelines). No absorption area credit is given for the sidewall.

C. Construction:

(1) Tank installations must consist of either a two-compartment rectangular tank or two rectangular tanks in series and otherwise conform to meet the requirements of Section 73.31, relating to Standards for Septic Tanks. Vertically aligned circular (round) tanks are not permitted. Aerobic treatment tanks must be in compliance with Section 73.32, relating to Standards for Aerobic Tanks.

(2) Leaching chambers shall be installed per the manufacture's Design and Installation Manual for the State of Pennsylvania. Since proper installation steps are uniform regardless of the chamber model being installed, the manual, "*Design and Installation Manual for Infiltrator Quick4 Standard and Quick5 Standard Chambers - Pennsylvania"* (March 2026), is also a reference for the installation of the other listed chambers and can be obtained from the manufacturer's website.

(3) To maintain the manufacturer's product warranty, leaching chambers may not be cut, drilled, or altered except as directed in the manufacturer's installation Manual for the State of Pennsylvania.

(4) The sidewall area of the leaching chambers must be filled to the top of slots with suitable native soil to stabilize the units and then the remainder is covered with suitable native soil as described in the manufacturer's installation manual. The use of hay or filter fabric over and/or around the chambers is prohibited.

(5) At least one inspection port shall be installed for each absorption area.

(6) Requirements for Pressurized Distribution Design

a) Endplates/endcaps must be drilled/opened to accept pressurized pipe in accordance with the manufacturer's installation manual.

b) Laterals must be suspended from the top of the chamber with weather-resistant polypropylene ties having a minimum of 30-pound tensile strength.

c) Laterals must enter from a manifold through an endplate/endcap and continue through the length of the chamber run per design. Laterals which extend outside the chamber shall be rigidly supported.

d) If the design includes a cap or cleanout at the end of the lateral, then it shall be rigidly supported.

e) Orifice hole sizing and equivalent flow standards shall be as required in Chapter 73. Orifice spacing standards established by Paragraph 73.44(c)(8) are not necessary.

f) The requirement of the last spray orifice being placed at the end of the lateral is not possible for leaching chambers. Therefore, continue the lateral beyond the last orifice to the end of the chamber run. The extra pipe length does not add to the piping systems friction loss and therefore need not be calculated into the system's lateral length.

g) Orifice flow may be inspected at any time by observing flow from either or both ends of the chamber row onto the sand surface as it exits the small-diameter pressure pipe and deflects off the chamber roof.
h) Orifices shall be placed at the 12 o'clock position. This configuration allows for the effluent to spray into the top of the chamber creating droplets that will rain down onto the absorption interface. To drain the piping and protect from freezing the first and last orifice shall be placed at the 6 o'clock position. A patio block or other suitable material shall be placed to protect the trench bottom from erosion.

(7) Requirements for Gravity Distribution
a) Gravity flow designs do not require the use of perforated pipe within the chambers. The solid pipe transferring the effluent from the distribution box to the absorption area shall be installed per the manufacturer's installation manual.
b) Either a plastic splash plate supplied by the manufacturer or one (1) ft^2 of gravel shall be placed on the soil where effluent enters the chamber as a means of dissipating the energy from the effluent flow.

(8) Requirements for Standard Trenches or Beds
a) Effluent may be distributed to leaching chambers by either gravity flow or pressurized flow in accordance with the requirements of Chapter 73.
b) Chambers should be laid out with the same requirements as a gravel trench or seepage bed.
c) Each row of chambers in a gravity system must be connected directly to the distribution box.
d) Side-by-side combinations of chambers may be used. Two standard chambers may be placed side-by-side in a 6-foot-wide trench. Two Equalizer 24 chambers may be placed side-by-side to provide the same allowable absorption area as a 4-foot-wide trench. When using a side-by-side combination of different width chambers, place the narrower chamber on the uphill side of the trench.
e) Shallow placement trench depth shall be a minimum of 12 inches on the downslope side of the trench. Sufficient depth to the limiting zone must be maintained at the upslope side of the trench bottom per Paragraph 73.14(a)(4) of the regulations.
f) The use of the narrower leaching chambers may be better suited for sites with steep slopes.
g) In seepage bed systems, the recommended chamber edge-to-edge separation is 0 to 6 inches.

(9) Requirement for Elevated Sand Mounds (ESM)
a) Pressure distribution is required.
b) The minimum ESM width is three leaching chambers wide.
c) Design parameters must meet the requirements of Section 73.55, relating to Elevated Sand Mounds.
d) Sand must meet the requirements of Subsection 73.55(c).
e) Sand placement for leaching chambers: To prevent differential settlement for the system, the sand must be placed in 12-inch lifts and compacted by running tracked equipment over the sand surface. Water may be added to aid in compaction. Proper compaction of the sand is the responsibility of the installer.

D. Installation: An onsite preconstruction conference attended by the sewage enforcement officer, designer, installer, and the property owner prior to construction is recommended.
E. Use of the Component/System and Siting Requirements:
   (1) When determining the number of chambers needed for the absorption area, the chamber rating must be equal to or less than the chamber ratings listed in Table 1. The chamber ratings in Table 1 represent a 40% reduction in the absorption area. The reduction in absorption area only pertains to the absorption area beneath the chamber. If the chamber rows are spaced apart from one another, the area between the chambers is not included in calculating the absorption area required. Where sizing reductions are proposed, they are not cumulative. No additional sizing reductions are allowed when the leaching chambers are used in conjunction with an aerobic treatment tank, composting toilet, or other system components that would allow for sizing reductions.
   (2) Soil profile evaluation and percolation tests must document that there is sufficient area for installation of a full-sized absorption area (prior to the calculation of the up to 40% reduction)

III. Minimum Maintenance Standards

A. The manufacturer's certified contractor must meet with the property owner and the local agency's SEO within one (1) month of system start-up and/or occupancy of the dwelling, to explain the operation and maintenance of the system and provide written instructions to the property owner that includes:
   (1) Instructions on the operation and maintenance of the system.
   (2) A drawing of the system with the location of all parts of the system shown and labeled in the drawing.
   (3) An agreement that commits the manufacturer's certified contractor to investigate and troubleshoot system problems.
   (4) Contact information for the manufacturer and manufacturer's certified contractor.
B. Warranty: The manufacturer of the leaching chambers must provide a minimum 5-year warranty on all defects due to materials or workmanship.
C. Inspection:
   (1) Inspection of the area around the soil absorption area every 6 months by the homeowner to ensure that there is no ponding of effluent or downgradient seepage.
   (2) The certified contractor shall inspect at least the following items at a frequency recommended by the manufacturer:
      a) Inspect septic tanks, dosing tanks, and lift pump tanks for structural integrity including inlet and outlet baffles, solids retainer, pumps, siphons, and electrical connections.
      b) Inspect aerobic tanks for structural integrity including inlet and outlet baffles, buoyed solids retainer, pumps, siphons, and electrical connections.
      c) Ensure that the pumping system is operational.
      d) Ensure that the absorption area cleanouts and/or vents are in proper working condition.
   (3) The certified contractor shall inspect and pump excess solids in accordance with the manufacturer's requirements or as required by municipal ordinance.

IV. Permitting Requirements

A. A sewage enforcement officer who has successfully completed an appropriate Department-approved training course that included this specific technology or has received review delegation in writing from the Department may independently review the design and issue the permit for components under this Listing. All other proposals under this Listing must be submitted to the Department for review and comment.
B. The sewage enforcement officer shall record the number assigned to this technology listing under the "Classification Type" on both the *Application for On-Lot Sewage System Permit (item 14)* and on the permit.

V. Planning Requirements

Planning may be required. For planning requirements please contact the DEP regional office where the site is located.

Table 1

Product	***Chamber Dimensions***	***Chamber Rating***
Arc 18	5.0' x 1.25' = 6.25 ft^2	10.42 ft^2
Arc 24	5.0' x 1.833' = 9.17 ft^2	15.28 ft^2
Arc 36	5.0' x 2.833' = 14.17 ft^2	23.62 ft^2
Arc 36LP	5.0' x 2.833' = 14.17 ft^2	23.62 ft^2
Equalizer 24	8.333' x 1.25' = 10.41 ft^2	17.35 ft^2
Equalizer 36	8.333' x 1.833' = 15.27 ft^2	25.45 ft^2
Quick 4 Plus Equalizer 36 LP	4.0' x 1.833' = 7.33 ft^2	12.22 ft^2
Quick 4 Plus Standard	4.0' x 2.833' = 11.33 ft^2	18.88 ft^2
Quick 4 Plus Standard LP	4.0' x 2.833' = 11.33 ft^2	18.88 ft^2
Quick 4 Standard	4.0' x 2.833' = 11.33 ft^2	18.88 ft^2
Quick 5 Standard	5.0' x 2.833' = 14.165 ft^2	23.61 ft^2
Standard Infiltrator	6.25' x 2.833' = 17.71 ft^2	29.50 ft^2
Standard Sidewinder	6.25' x 2.833' = 17.71 ft^2	29.50 ft^2

Table 2

Product	***MultiPort end cap length (per pair installed) (ft)***	***MultiPort end cap rating (per pair installed) (ft^2)***
Quick 4 Standard	2.21	10.43
Quick 5 Standard	2.21	10.43

Appendix I: Absorption Area Sizing Calculations

The following method must be used when sizing on-lot sewage disposal designs using leaching chambers.

Step #1: Calculate square footage of absorption area as required by the regulations in Section 73.16, Table A.

Step #2: Calculate the number of chambers required.

$$\text{Number of Chambers Required} = \frac{\textit{Absorption Area in Step \#1}}{\textit{Chamber Rating}}$$

Step #3: Round up the number of chambers required in Step #2 to the nearest whole number.

Step #4: Calculate the absorption area required using the number of chambers calculated in Step #3 and the chamber rating.

Absorption Area required, ft^2 = (# of Chambers Required in Step #3) (Chamber rating)

For MultiPort end cap reduction for the Quick4 Standard and Quick 5 chambers, see Table 2 and the manual *Design and Installation Manual for Infiltrator Quick4 Standard and Quick5 Standard Chambers - Pennsylvania* (March 2026) for the calculation example.