

Commonwealth of Pennsylvania
Department of Environmental Protection (DEP)
Bureau of Point and Non-Point Source Management
Harrisburg, PA

Issued to: Generic Listing

Technology: Modified Subsurface Sand Filter

Classification Type: Alternate technology (A2014-0020-0002)

Classification Date: February 6, 2004 (ASG)
February 24, 2014

In accordance with Title 25, Chapter 73, Section 73.72, DEP classifies the Modified Subsurface Sand Filter for use as an alternate onlot sewage treatment system. This classification permits the use of the Modified Subsurface Sand Filter as a treatment system capable of receiving sewage effluent at either the primary treatment level (exceeding 25 mg/l CBOD₅ and exceeding 30 mg/l TSS) or the secondary treatment level (not exceeding 25 mg/l CBOD₅ and not exceeding 30 mg/l TSS).

I. Technology Description

The Modified Subsurface Sand Filter is a subsurface sand filter described by Section 73.54 which allows for faster percolation rates. The site must have a percolation rate of less than 3.0 min/in as determined by a percolation test conducted between 12 and 36 inches from the soil surface. Limiting zones other than excessively permeable rock or gravel layers may not occur within 72 inches of the soil surface.

II. Design Requirements

- A. Location: The Modified Subsurface Sand Filter may be installed for the treatment of domestic strength wastewater (as defined by Table 1 of Miscellaneous Data to be used in Conjunction with PA DEP listings) serving a new construction or as a repair.
- B. Siting:
 - (1) The site must have a percolation rate of less than 3.0 min/in as determined by a percolation test conducted between 12 and 36 inches from the soil surface. Limiting zones other than excessively permeable rock or gravel layers may not occur within 72 inches of the soil surface.
 - (2) A percolation test conducted at a depth between 36 and 60 inches from the soil surface must result in an average percolation rate between 3.0 and 180 min/in. The material in the horizon with a percolation rate less than 3.0 min/in must be excavated and replaced with sand meeting the specifications outlined in Chapter 73, Section 73.55(c).
 - (3) The soil analysis must indicate a lower horizon at least 20 inches thick with sufficient fines present to support an acceptable percolation rate. The top of this horizon must occur at a depth greater than or equal to 36 and less than or equal to 60 inches from the soil surface.

C. Construction:

- (1) Tank installations must consist of either a two-compartment rectangular tank, two rectangular tanks in series, and otherwise conform to meet the requirements of Section 73.31. Vertically aligned circular (round) tanks are not permitted. Aerobic treatment tanks must be in compliance with Section 73.32.
- (2) The maximum depth of excavation shall be 5 feet.
- (3) The total depth of sand and the suitable soil horizon must be equal to or greater than 48 inches.
- (4) A minimum of 12 inches of sand shall be used in every instance.
- (5) Sufficient sand must be provided so the bottom of the aggregate is within 36 inches of the soil surface.
- (6) The entire absorption area must be surrounded by a 4-foot perimeter of sand material not containing any part of the aggregate bed. The lateral system shall not extend into the 4-foot perimeter.
- (7) The design of the bed shall meet the specifications of Sections 73.52 and 73.53, except for the addition of the width requirement in Section II.C(6) (where applicable).
- (8) An application rate of 1.50 square feet per gallon shall be used to determine total absorption area required for an in-ground system where the average percolation rate falls between 3.0 and 6.0 min/in. Sites with a percolation rate of over 6.0 min/in for the percolation test conducted between 36 and 60 inches from the soil surface shall use elevated sand mound application rates.
- (9) Construction using trench configuration is not acceptable.

- D. Installation: An onsite preconstruction conference attended by the sewage enforcement officer, designer, installer, and the property owner prior to construction is recommended.

III. Minimum Maintenance Standards

- A. 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.
- B. The manufacturer's representative must meet with the property owner within one (1) month of system start-up and/or occupancy of the dwelling and with the local agency's SEO upon request, to explain the operation and maintenance of the system, provide written instructions to the property owner, and to identify the locations of all parts of the system.
- C. The service provider shall inspect at least the following items an interval frequency recommended by the manufacturer's requirements:
 - (1) Inspect septic tanks, dosing tanks, and lift pump tanks for structural integrity of the tank, inlet and outlet baffles, solids retainer, pumps, siphons, and electrical connections;
 - (2) Inspect aerobic tanks for structural integrity of the tank, inlets, and outlet baffles, buoyed solids retainer, pumps, siphons, and electrical connections.
 - (3) Ensure that the pumping system is operational.
- D. The service provider shall inspect and pump excess solids in accordance with the manufacturer's requirements.

IV. Permitting Requirements

- A. A sewage enforcement officer 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 include on both the *Application for An Onlot Sewage Disposal* permit (Part III, Section 1) and the permit, the classification number itemized in the Classification Type of this listing.

V. Planning Requirements

Not applicable