

# Well and Onsite Wastewater Facts

## WASTEWATER TECHNOLOGY

FSN - 6

Loudoun County Health Department

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**Component Type:** Treatment

**Function:** A sand filter provides secondary treatment or better.

**Manufacturers:**

Sand filters are generic and don't come off a manufacturers shelf.

**First approved in Virginia:** Sometime in the early 1950's

**Number installed in Loudoun County:** 25

**Allowance to reduce dispersal field footprint:** Yes

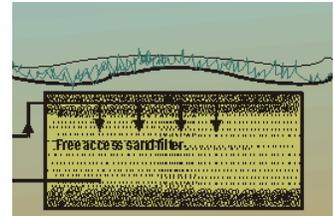
**Description of Use**

Sand filters are a type of aerobic treatment system. There are single pass sand filters and recirculating sand filters. Both types of sand filter are built in a watertight container which is usually either concrete or lined with a 30 mil liner. In addition to physically filtering the water, they perform as a biological filter. Microorganisms, highly adapted to decomposing wastewater, live on the sand grains. The sand must pass certain physical tests to be used or else the technology will not work properly (crushed glass and a shale has been used also). Like other media filters, Physical (Absorption and filtration), Chemical (Adsorption, ion exchange), and Biological (Microbial assimilation) processes take place. A recirculating sand filter (RSF) recirculates a portion of the filtered water back to a tank where the oxygen is low to allow for denitrification and then it is passed across the filter again. As a result, these systems are typically capable of removing 90% or more of the polluted mater (characterized as BOD, SS, coliforms and E. Coli) and 30% to 70 % of the nitrogen as a recirculating system. A recirculating sand filter loses some of its efficiency for removal of coliforms and E. Coli.

**Recommended Maintenance Required**

Sand Filters require more maintenance than conventional septic-tank-drainfield systems. A maintenance contract is strongly recommended. The system should be serviced at least twice per year. Maintenance includes inspecting flow meters, pump, recirculation tank, recirculation pump, distribution systems, media and effluent quality; and cleaning and repairing when needed. In particular, the flow meter should be read to make sure the application rates are within the design limits. Spray heights on the pressure distribution system should be inspected to ensure even distribution over time. A visual inspection of the effluent is required and often a lab analysis is necessary. Over time the upper layer of the RSF may become plugged with solids or a build-up of organic matter. If this happens, the upper layer should be removed and replaced with new media. At high loading rates on single pass filters (2 to 6 gal./sq. ft.), the sand must be replaced every 2-5 years.

### Sand Filter



Sand filter



Typical Installation



Single pass installed

