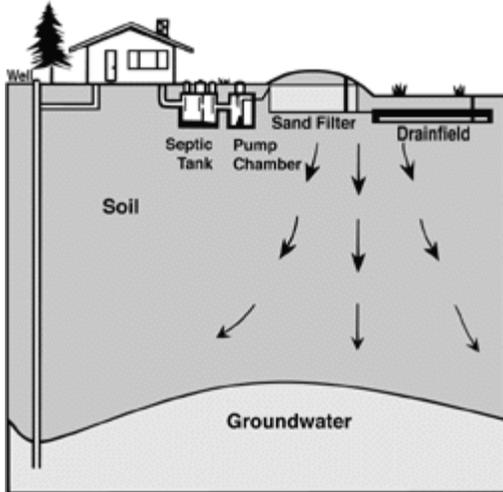


# CLEAN WATER FOR WASHINGTON



## Properly Managing Your Sand Filter System



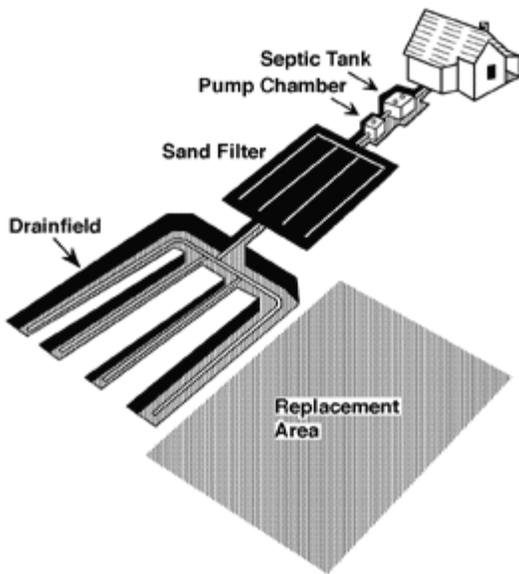
Septic tanks with gravity flow drainfields have been used for many years in areas not served by public sewers. Unfortunately, not all soil and site conditions are well-suited for conventional septic systems. To protect public health and water quality, alternative systems are often used in areas where conventional systems cannot guarantee safe sewage treatment. The intermittent sand filter is one such alternative. It:

- Can be constructed above or below the ground.
- Provides a high level of wastewater treatment before the wastewater reaches the soil.

The following information will help you understand your sand filter system, and keep it operating safely at the lowest possible cost.

A typical sand filter system has four working parts:

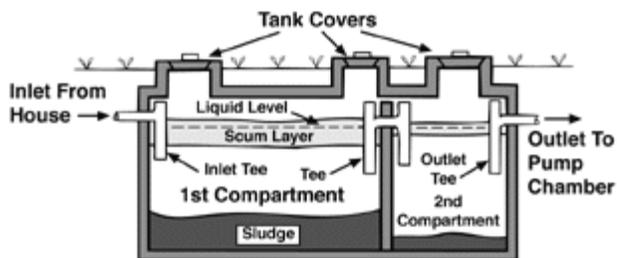
1. The septic tank.
2. The pump chamber with the pump.
3. The sand filter.
4. The disposal component including a drainfield (or possibly a mound) with its replacement area.



### The Septic Tank

The typical septic tank is a large buried container made of concrete, fiberglass or polyethylene. Wastewater from your home flows into the tank. Heavy solids settle to the bottom where bacterial action partially decomposes them. Most of the lighter solids, such as fats and grease, rise to the top and form a scum layer.

The wastewater leaving the septic tank is a liquid called effluent. It has been partially treated but still contains disease-causing bacteria and other pollutants. From the tank, the effluent flows by gravity into the pump chamber.



### Proper Care:

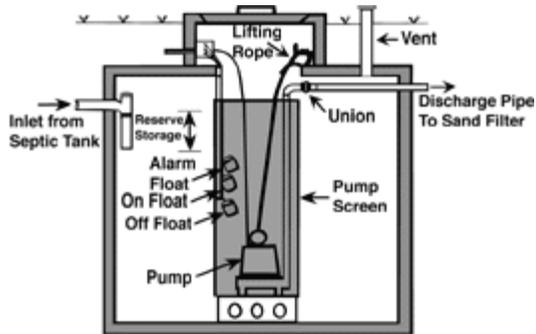
1. Inspect your septic tank once a year and pump it when needed. If the tank is not pumped periodically, solids escaping from the septic tank will clog the pump, sand filter, and drainfield. Using a garbage disposal will increase the amount of solids entering the tank, requiring more frequent pumping.
2. Avoid flushing harmful material into the septic tank. Never put grease, newspapers, paper towels, cigarettes, coffee grounds, sanitary napkins, solvents, oils, paint or pesticides into the tank. For information on the proper disposal of hazardous household waste, call the Recycle Hotline, 1-800-RECYCLE.
3. Avoid using any chemical or biological septic tank additive. Additives do not improve the performance of the tank. They do not reduce the need for routine pumping, and some are even harmful to the system.

### The Pump Chamber

The pump chamber is a concrete, fiberglass or polyethylene container that collects septic tank effluent. The chamber contains a pump, pump control floats, and a high-water alarm float. The control floats are adjustable and are set for pumping a specific volume of effluent. When the effluent rises to the level of the ON float, the pump starts delivering the effluent to the sand filter. The pump lowers the effluent level to the OFF float and stops.

The high-water alarm float in the pump chamber starts an alarm to warn you of any pump or system malfunction. The float is set to start when the effluent in the pump chamber rises above the ON float. The alarm should consist of a buzzer and an easily visible light. It should be on an electrical circuit separate from the pump.

The pump discharge pipe should have a union or other quick-disconnect coupler for easy removal of the pump. A piece of nylon rope or other noncorrodible material should be attached to the pump for taking the pump in and out of the chamber.



### Proper Care:

1. Check the pump chamber, pump and floats every year and replace or repair worn or broken parts. Pump maintenance should follow the manufacturer's recommendations. Electrical parts and conduits should be checked for corrosion. If the alarm panel has a push-to-test button, it should be checked regularly.
2. Install a septic tank effluent filter or pump screen if your system does not have one. Screening or filtering the septic tank effluent effectively prevents solids from clogging the pump and pipes. Inspecting a screen or filter and cleaning it when necessary are quick, easy, and prevent costly damage from solids entering the system.
3. Take action to protect the sand filter and drainfield after a prolonged power outage or pump failure. Effluent will continue to collect in the pump chamber until the pump resumes operation. With additional effluent in the chamber, the pump may dose a volume greater than the sand filter or drainfield can handle.

If all of the reserve storage inside the chamber is used, the plumbing in your home can back up. When the pump is off for more than 6 hours, take the following measures to help protect your system:

- a. Reduce your water use to a minimum.
- b. Turn off the pump at the control panel.
- c. After power is restored or pump service is completed, switch the pump on and let it run for 5 minutes maximum, and turn it off again. Repeat this manual switching every 6 hours until the effluent drops to the OFF float level and the

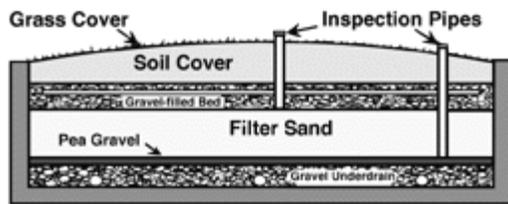
pump turns off automatically. If there is little water use during the outage or pump service, the pump may automatically turn off during the first manual switching.

**Caution! Always turn off the power supply at the circuit breaker and unplug all power cords before handling the pump or floats.**

Do not enter the pump chamber. Gases inside pump chambers are poisonous and the lack of oxygen can be fatal. The service or repair of pumps and other electrical equipment must be done by an experienced person.

### The Sand Filter

The typical sand filter is a concrete or PVC-lined box filled with a specific sand material. A network of small diameter pipes is placed in a gravel-filled bed on top of the sand. The septic tank effluent is pumped under low pressure through the pipes in controlled doses to insure uniform distribution.

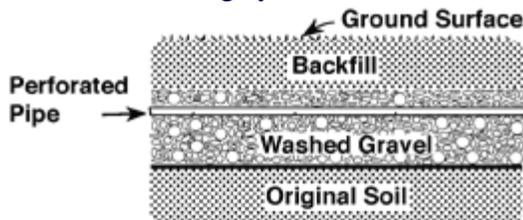


The effluent leaves the pipes, trickles downward through the gravel, and is treated as it filters through the sand. A gravel under-drain collects and moves the treated wastewater to either a second pump chamber for discharge to a pressure distribution drainfield or to a gravity flow drainfield. The second pump chamber may be located in the sand filter.

### The Drainfield

The drainfield receives the treated sand filter effluent for disposal. It has a network of pipes placed in gravel-filled trenches 2-3 feet wide or beds (over 3 feet wide) in the soil. The effluent leaves the pipes, trickles downward through the gravel, and into the soil.

Every new drainfield is required to have a designated replacement area. This area is similar to the size of your existing drainfield. It must be maintained should the existing system need an addition or repair.



### Proper Care:

1. Know where your system and replacement area are located and protect them. Before you plant a garden, construct a building, or install a pool, check on the location of your system and replacement area.
2. Practice water conservation and balance your water use throughout the week

to keep from overloading the system. The more wastewater you produce, the more the sand filter and soil must treat and dispose of.

3. Divert water from surfaces, such as roofs, driveways, or patios away from the system or replacement area. Soil over your system should be slightly mounded to help surface water runoff. Sprinkler systems do not belong in the area of the sand filter or drain field.

4. Keep traffic, such as vehicles, heavy equipment or livestock off your system and replacement area. The pressure can compact the soil or damage pipes.

5. Landscape your system properly. Do not place impermeable materials over your system or replacement area. Materials such as concrete or plastic reduce evaporation and the supply of oxygen to the soil needed for proper effluent treatment. Grass is the best cover for your entire system.

6. Inspect the sand filter and drainfield areas periodically for odors, wet spots, or surfacing sewage. Check your system's inspection pipes regularly to see if there is a liquid level continually over 6 inches. This may be an early indication of a problem. Call your local health agency for assistance.

### What If the Alarm Goes On?

If, for any reason, the effluent level inside the pump chamber reaches the alarm float (due to a faulty pump, floats, circuit, or another problem), the alarm light and buzzer will start. By using water conservatively (avoid baths, showers, and clothes washing), the reserve storage in the pump chamber should allow you enough time to get the problem corrected. To silence the alarm, push the reset light on the alarm panel. Before calling for service or repair, check to see if the problem could be:

1. A tripped circuit breaker or blown fuse. The pump should have a separate circuit with its own breaker or fuse. If it's on a circuit with other equipment, that equipment can cause the breaker to trip.

2. A pump or float switch power cord plug that has come unplugged. If electrical connections are the plug-in type, make sure that switch and pump plugs are making good contact in their outlets.

3. Control floats tangled by other parts in the chamber such as the electric power cord, lifting rope, or pump screen. Make sure that floats operate freely in the chamber.

4. Debris on floats and support cable that is causing the pump to switch off. Lift the floats out of the chamber and clean.

**CAUTION! Always turn off the power supply at the circuit breaker, and unplug all power cords before handling the pump or floats.**

Do not enter the pump chamber. Gases inside pump chambers are poisonous and the lack of oxygen can be fatal.

If the problem cannot be located with the above steps, call your pump service person or on-site system installer for service or repair. The service of pumps and other electrical equipment must be done by an experienced person.

### **Additional Information**

More information is available from the following Department of Health publications:

Guidelines for Sand Filters, 1989.

Understanding And Caring For Your Septic Tank System, DOH 334-009.

Water Saving Guideline 1, DSHS 22-643 (x) 5/88.

Septic Tank System For Your Home, DSHS 22-45A 11/83.

On-Site Sewage System Regulations, DOH 334-006A WAC 246-272.

These are available from your county health agency or by writing to:

**Washington State Department of Health Office of Community  
Environmental Health Mail Stop LD-11 Olympia, WA 98504**

Other sources of information include your local:

Health Agency

Soil Conservation Service Office

Cooperative Extension Office

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