

Understanding And Caring for Your Pressure Distribution 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 these conventional systems. To protect public health and water quality, alternative systems are often used in areas where conventional systems cannot assure safe sewage treatment.

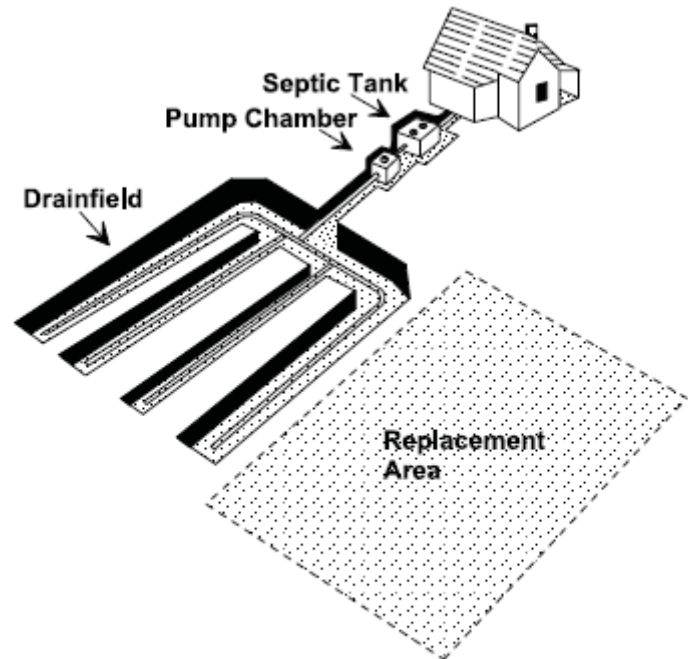
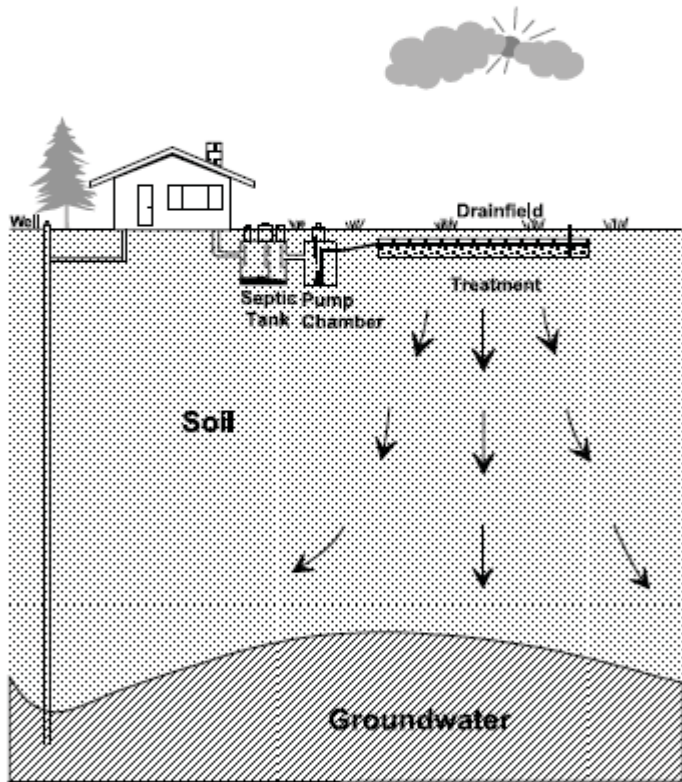
The pressure distribution system is one alternative, which provides:

- Dosing and resting cycles.
- Uniform distribution of effluent.
- Shallow placement of the drainfield.

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

A typical pressure distribution system has three working parts:

1. The septic tank.
2. The pump chamber with the pump.
3. The drainfield with its replacement area.



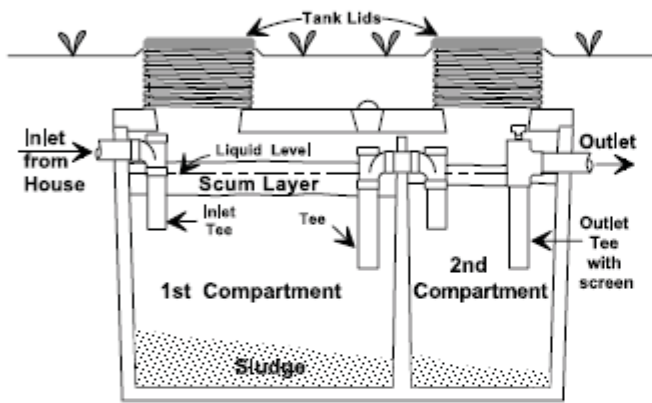
WASHINGTON STATE
DEPARTMENT OF HEALTH

WASHINGTON STATE UNIVERSITY
COOPERATIVE EXTENSION SERVICE

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 to the pump chamber.



Proper Care Includes:

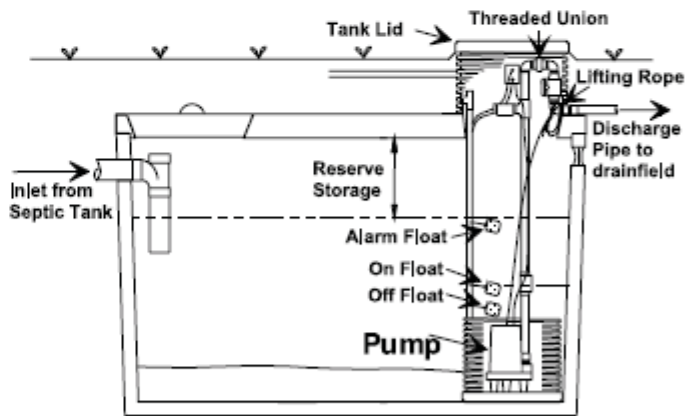
1. Inspecting your septic tank once every year and pumping it when needed. If the tank is not pumped periodically, solids escaping from the septic tank will clog the pump and drainfield. Using a garbage disposal will increase the amount of solids entering the tank and require more frequent pumping.
2. Avoiding the flushing of harmful material into the septic tank. Never put materials such as grease, cooking oils, newspapers, paper towels, cigarettes, coffee grounds, sanitary napkins, solvents, oils, paint, and pesticides into the tank. For information on the proper disposal of hazardous household waste, call the Recycle Hotline, 1-800-RECYCLE.
3. Avoiding the use of any type of chemical or biological septic tank additive. Such products are not necessary for the proper functioning of a septic tank, nor do they reduce the need for routine tank pumping.

The Pump Chamber

The pump chamber is a concrete, fiberglass or polyethylene container that collects the septic tank effluent. The chamber contains a pump, pump control floats, and a high-water alarm float. The pump action can be controlled either by the use of control floats or by timer controls. Control floats are set to turn the pump "ON" and "OFF" at levels for pumping a specific volume of effluent per dose. Timer controls are set to produce both the length of the dose and the interval or rest period between doses.

The high water alarm float starts an alarm to warn you of any pump malfunction. If pump timer controls are used, the alarm also will warn you of excessive water use in the home. 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 and valve for easy removal of the pump. A piece of nylon rope or other non-corrosive material should be attached to the pump for taking the pump in and out of the chamber.



Proper Care Includes:

1. Checking the pump chamber, pump and floats every year and replacing or repairing 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. **Installing a septic tank effluent filter or pump screen, if your system does not have one.** Screening or filtering the septic tank effluent provides an effective way of preventing solids from clogging the pump and drainfield pipes. Inspecting a screen or filter, and cleaning it, when necessary, is quick and easy, and prevents costly damage from solids entering the system.

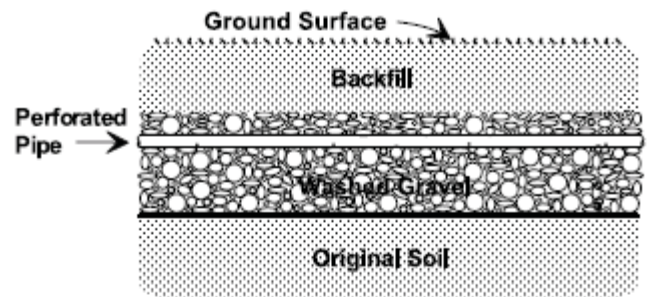
3. **Taking action to protect the drainfield from overloading after a prolonged power outage or pump failure.** Effluent will continue to collect in the pump chamber until the pump starts operation. With additional effluent in the chamber, the pump may dose a volume more than the drainfield can handle. If all of the reserve storage in the chamber is used, the plumbing in your home can backup. When the pump is controlled by float controls and is off for more than 6 hours, the following measures can be taken to help protect the drainfield:

(Timer controls will automatically correct this problem)

- 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 problem, the pump may automatically turn off during the first manual switching.

The Drainfield

The drainfield is a network of pipes placed in gravel-filled trenches (2–3 feet wide) or beds (up to 10 feet wide) in the soil. Effluent is pumped through the pipes in controlled doses to insure uniform distribution throughout the drainfield. The effluent leaves the pipes under low pressure through small diameter holes, and trickles downward through the gravel where it reaches the soil. The soil filters and treats the effluent, removing bacteria and other pollutants before it reaches the groundwater. Every new drainfield is required to have a designated replacement area. It must be protected should that the existing system need an addition or repair.



Proper Care Includes:

1. **Knowing where your system and replacement area are located and protecting them.** Before you plant a garden, construct a building, or install a pool, check on the location of your system and replacement area.
2. **Practicing water conservation and balancing your water use throughout the week to keep from overloading the system.** The more wastewater you produce, the more the soil must treat and dispose of.
3. **Diverting water from surfaces such as roofs, driveways, or patios away from the drainfield and replacement area.** Soil over your system should be slightly mounded to help surface water runoff.
4. **Keeping traffic, such as vehicles, heavy equipment or livestock off the drainfield and replacement area.** The pressure can compact the soil or damage pipes.
5. **Landscaping your system properly.** Do not place impermeable materials over your drainfield or replacement area. Materials, such as concrete or plastic reduce evaporation and the supply of air to the soil needed for proper effluent treatment. Grass is the best cover for your entire system.
6. **Inspecting the drainfield and downslope areas for odors, wetspots, or surfacing sewage periodically.** If your drainfield has inspection pipes, check them 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 (faulty pump, floats, circuit, excessive water use, 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 that has come unplugged.** If electrical connections are the plug-in type, be sure switch and pump plugs are making good contact in the outlet.
3. **Control floats tangled by other parts in the chamber such as the electric power cord, lifting rope, or pump screen.** Be sure 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 air can be fatal. If the problem cannot be located with the above steps, call your pump service person or on-site system contractor for service or repair. The service or repair 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:

Pressure Distribution—Recommended Standards and Guidance for Performance, Design, and Operation and Maintenance, 1999.

<http://www.doh.wa.gov/ehp/ts/WW/PressDistr99.pdf>

Understanding and Caring for Your Septic Tank System.

DOH Pub 334-009

http://www3.doh.wa.gov/here/materials/CRA_Detail.aspx?ID=358

Water Conservation Guidelines to Being Waterwise.

DOH Pub 331-120

<http://www4.doh.wa.gov/dw/publications/default.cfm?action=pubdetail&CFID=13680&CFTOKEN=50860812&type=subject&PubId=264>

On-Site Sewage System Regulations, Chapter 246-272 WAC.

DOH Pub 334-006C

<http://www.doh.wa.gov/ehp/ts/WW/OnSiteRegs.doc>

The above publications are available from your county health agency or by writing to:

Washington State Department of Health
Office of Environmental Health and Safety
PO Box 47825
Olympia, WA 98504-7825

Other sources of information include your:

Local Health Agency
Soil Conservation Service Office
Cooperative Extension Office

