

**WHAT EVERYONE
SHOULD KNOW
ABOUT**

Septic Tank Systems

Yosemite Lakes Owners' Association

Why do Drain fields or Seepage Pits Fail?

(Anaerobic System)

It is important to remember that the sewage treatment and disposal system is a biological process, as is every other form of digestion in nature. Just as you breathe, digest and excrete your food, so does the biological colony in your septic tank and drain field.

The airless septic tank provides an environment for anaerobic, (those that do not require oxygen for life) to live and digest the sewage. These bacteria are slow moving and inefficient. They produce low levels of harmful by-products and offensive odors.

To further complicate matters, the anaerobic bacteria produce slime and gum to protect their outer membranes. These are secreted into the surrounding soil and cause further soil plugging. Eventually, this whole layer crusts, seals and causes the complete failure of the drain field by preventing natural movement of wastewater. No more water can get through the field and surfacing odors, sluggish plumbing and back-ups result.

THE KEY TO A PROPERLY WORKING LEACH FIELD IS AN AEROBIC ENVIROMENT

Aerobic digestion is many times more efficient than anaerobic digestion. The aggressive microbes can digest up to 80-90% of the sewage as opposed to the slow moving anaerobic, which will digest only 15-30%. In addition, the efficient aerobics can handle the more sophisticated and chemically complicated sewage found routinely in modern homes and businesses.

THE MADERA COUNTY ENVIROMENTAL HEALTH DEPARTMENT RECOMMENDS:

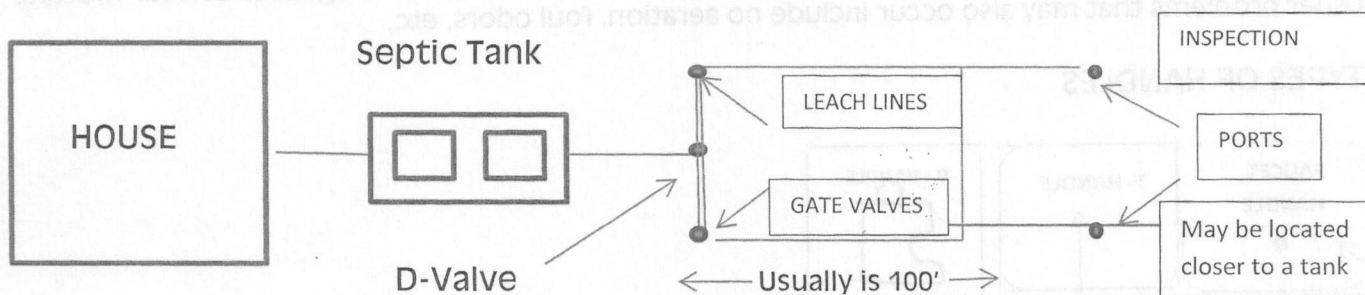
1. Switching leach lines every 6 months or sooner if needed and
2. Pumping septic tank every 3-5 years, depending on usage.

The above actions may prolong the service life of your leach field.

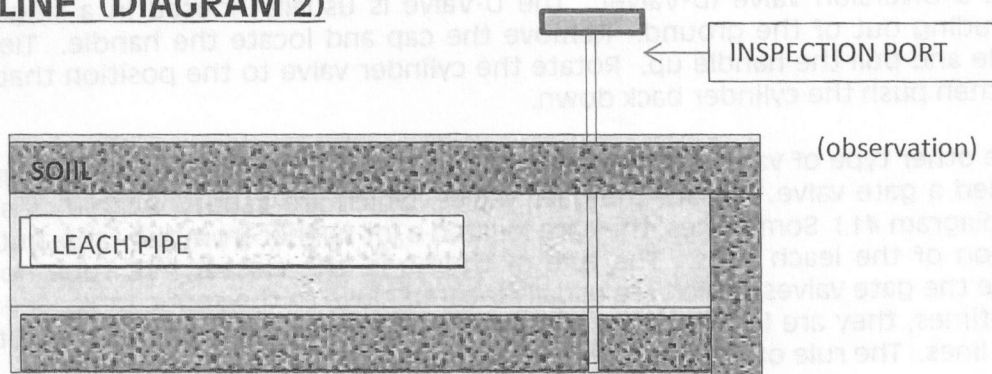
- The following information is provided as a service to homeowners and is for general information only. Please contact a septic system service technician with respect to questions or problems you may have.

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OVERVIEW OF A TYPICAL SEPTIC SYSTEM - (DIAGRAM 1)



TYPICAL LEACH LINE (DIAGRAM 2)



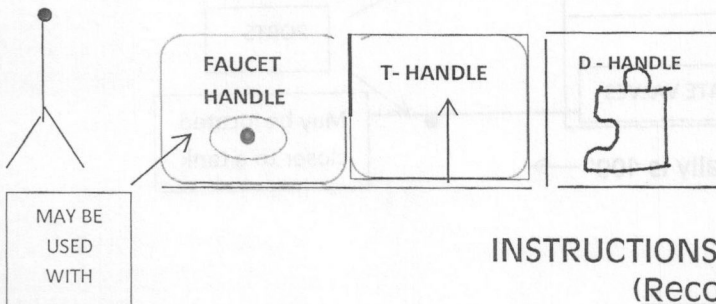
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INSTRUCTIONS FOR INSPECTING LEACH LINES

(Recommendations Only)

- Refer to Diagrams (1) and (2) on page 3, and locate the inspection Port. Inspection Ports are usually located furthest from the septic tank. 5 ft to 300ft plus from the tank. Look for white 4" PVC pipes with caps. Remove the cap and use flashlight to look inside inspection port. If the effluent (waste water) level inside the port appears to be two feet or less from ground level, contact a septic service provider for advice.
- On most systems, the ideal leach line will have very little or no effluent inside inspection port when in use.
- If the leach line is full of effluent, it may back up inside the septic tank, causing a HIGH WATER (effluent) PROBLEM. This may trip a circuit breaker and/or short out some types of aerator motors. Other problems that may also occur include no aeration, foul odors, etc.

TYPES OF HANDLES



INSTRUCTIONS FOR SWITCHING LEACH LINES (Recommendations Only)

****Note:** It is recommended that you contact a septic service technician to switch leach lines; however, as the association continues to upgrade service to homeowners, these instructions are provided for informational purposes. **

1) The first type in a single valve, which usually has three to four holes inside the valve cylinder. This allows the valve to open and close two to three leach lines. This type of valve is called a Diversion valve (D-Valve). The D-Valve is usually housed in a single black 5" PVC pipe, protruding out of the ground. Remove the cap and locate the handle. Tie a rope through the handle and pull the handle up. Rotate the cylinder valve to the position that opens the dry leach line, then push the cylinder back down.

2) The other type of valve arrangement utilizes a single valve for each leach line. This type of valve is called a gate valve. Locate the gate valves, which are usually located close to the septic tank. (See diagram #1.) Sometimes, they are located a lot farther from the tank, but this depends on the location of the leach lines. The rule of thumb is: the closest PVC tube houses the gate valve. Locate the gate valves, which are usually located close to the septic tank. (See diagram #1. On pg 3) Sometimes, they are located a lot farther from the tank, but this depends on the location of the leach lines. The rule of thumb is: the closest PVC tube houses the gate valve.

Some systems have observation ports close to the Gate Valve. Look for the white 4" PVC pipes with caps which are usually protruding out of the ground. Remove the cap and locate the handle (see

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diagram 3, for illustration of handle). NOTE: Approximately four to six inches of dirt sometimes forms inside PVC pipes. If the handles are not visible, we recommend contacting a service technician to locate the Gate Valves handle.

- If your system has a faucet handle, turn the handle clockwise in order to close the effluent-filled leach line, and then turn the handle counter-clockwise to open unused leach line. If your system has a T-Handle, you need to push down on the handle to close it, and then pull up on the handle to open it.
- Monitor the progress of the effluent level in the dry leach line just opened. Sometimes a leach line will fill up with effluent right away, indicating that the leach line may have a problem. If this occurs, switch the valve back to its original position immediately and have the bad leach line repaired immediately. On units which contain a sump pump, check with a service technician to determine the correct length of time you should wait before inspecting the line.
- Switching leach lines will give a homeowner an opportunity to find out how many leach lines are working properly.
- There are usually two or more leach lines at each residence. This allows for switching leach lines periodically in order to give the leach line in use a chance to dry out.

****The foregoing is provided as a service to homeowners and contains recommendations only. Your system may vary from examples shown. If you have any questions or problems, contact a septic system service technician for assistance.**

A national survey shows that if you have your septic tank pumped out regularly at the end of ten years, your system will be in like-new condition; healthy, free-flowing, odor free, and ready to give you years and years more service.

If you neglect your system, at the end of the same ten year period you will have a dead, failed system. You will then have to get a contractor dig up your yard, remove the contaminated material and replace the system. You will also have to endure the aggravation of trucks and equipment in your yard and wait for you lawn to come back in. Which makes more sense to you?



SOME COMMONLY ASKED QUESTIONS:

Q: What causes the thick crust in my septic tank?

A: The crusting is organic material that has congealed into a solid mass. This condition is dangerous and indicates a bacterial deficiency. Your tank needs pumping.

Q: Will acid help my septic system?

A: Acids and chemicals work only temporarily. They are extremely dangerous to use and are harmful to the environment. The environmental protection agency has already banned the use of these hazardous materials in many areas.

Q: What about yeast or baking soda?

A: Yeast merely provides a fermentation environment. It does not provide bacteria. Baking soda raises the PH in the tank. Again, no bacteria provided, and raising the PH too much can actually harm the septic process.

Q: My system recently backed up for the first time in years. Why should I start maintaining it now?

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A: A backup is the first sign of a septic system failure. You will be lucky to go another 6 months without another backup. If you don't start a maintenance program right away, you will be replacing your septic system soon.

WARNING SIGNS OF SEPTIC SYSTEM FAILURE

- Sluggish drainage in the home
- Plumbing backups
- Gurgling sound in pipes and drains
- Outdoor odor
- Mushy ground or greener grass in area of septic system

OTHER CAUSES OF SEPTIC SYSTEM FAILURE

- Improper placement, in area of poor drainage
- Improper installation, not according to septic codes
- Overloading-use water sparingly, do only full loads of wash at off-peak times if possible. Do not put kitchen grease down the toilet.

Do not flush cigarette butts, sanitary napkins, or other inorganic material down the toilet.

- Garbage disposals' ground up food are especially hard on the septic system because they are not digested first by the
- human body. Any septic system that receives garbage grindings need the extra help of enzymes to break down these solids.
- Water softeners - salts and chemicals will damage the septic tank. Channel washing machine and waste from the water softeners into separate disposal area if possible. Such as drywall.
- Tree Roots clogging pipes – ask your septic contractor about this.
- Isn't it time for you to start your maintenance program? The well-being of your family and property value is at stake.
- Madera County does not recommend use of additives – that is the purpose of our aerobic system Aerator motors, to create Aerobic Bacteria necessary to keep our systems working properly.

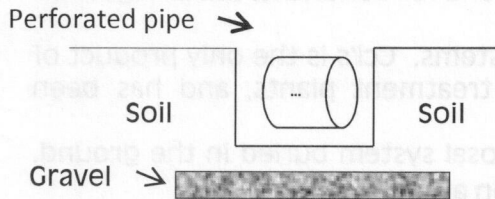
Aerobic Septic Systems are installed in Yosemite Lakes Park because of the type of terrain and to help protect the environment. The purpose of an Aerobic Septic system is to allow a cleaner effluent ("waste water") to leave the septic tank. This accomplished by pumping air into the tank, which creates "aerobic bacteria" which breath and work more efficiently, as opposed to anaerobic bacteria in a typical septic tank, which do not require air and are less efficient.

The sludge in the septic tank (inorganic and inert material and by products of bacterial digestion) is not biodegradable and will not decompose. If not removed, sludge will accumulate until it overflow, again clogging the soil absorption area. Drainage pits are precast or concrete block cylinders. They have closed tops, open bottoms, and holes in the sidewalls. Some older septic systems consist of only a drainage pit or cesspool.

Soil Absorption – or leaching area:

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There are many kinds of soil absorption or leaching systems. There are too many to discuss them all. There are three main ways to carry off the overflow water from the septic tank: leaching fields, filter beds, and drainage pits (also called drywells or cesspools). Leaching fields generally consists of a network of perforated pipes laid in a gravel-lined trench. Solids clogging the pipe perforations will cause drainage to slow and eventually stop.



Filter beds work on the same principle as leaching fields, with a perforated pipe running through layers of sand and crushed stone. Filter beds are wider than leaching fields, and can be constructed above or below the ground.

Filter beds are much smaller than leaching fields, and can be utilized where property is not large enough for the long trenches required for a leaching field. Solids clogging the perforated pipe or the sand will cause drainage to slow and eventually stop.

SEPTIC SYSTEM

The US Government Department of Health, Education, and Welfare Public Health Service says: A septic tank will serve a home satisfactory only if it is properly designed, installed and adequately maintained. Even a good system which does not have proper care and attention may become a nuisance, and burdensome expensive.

Septic Systems maintenance means two simple things, first, sludge that accumulates in the bottom of the tank must be pumped out periodically.

How frequently depends on the size of the tank, the use it gets, and the condition of the system. There is no additive that you

can put in the tank that will deal with the sludge. **IT MUST BE PUMPED OUT.** If not pumped out, it will eventually overflow into the soil absorption area. This will clog the system, and it will need to be replaced, at enormous expense and inconvenience.

The second part of the septic system maintenance involves the bacteria necessary for solids digestion. If bacteria killing products are used in the home (as they usually are) the bacteria must be replenished, the septic system will fill up with solid material and overflow into the soil absorption area. This will clog the system and it will have to be replaced.

Your septic tank could be overflowing solid material into the soil **RIGHT NOW** and you won't know it until it blocks the soil so badly that no more drainage is possible. This blockage takes varying periods of time depending on soil structure. But this is fact: a neglected system **WILL** get blocked; it **WILL** overflow; it **WILL** have an obnoxious odor; it **WILL** contaminate and pollute. It will probably have to be replaced. The first septic system "emergency" usually marks the beginning of the end. Replacement cost vary from \$1500.00 to \$3000.00 and up.

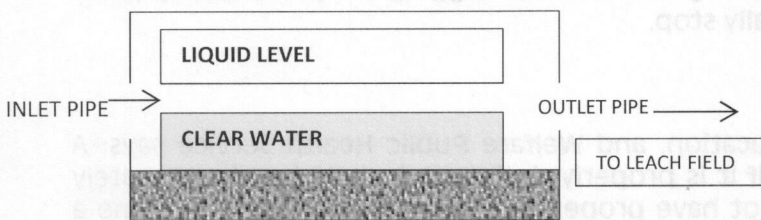
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DO NOT NEGLECT YOUR SEPTIC SYSTEM

Your professional septic contractor can check out the condition of your system. If it needs to be cleaned he is equipped to clean it. If it has a bacterial deficiency, he can supply you with CCL's which contain enzymes immediately available to break down the solids in drains, pipes, septic tank, and soil absorption systems. Ccl's also contain reproductive bacteria for continued solids digestion and odor control. Ccl's work on greases, fats, soap scum and 95% of the organic solids that ordinarily clog septic systems. Ccl's is the only product of its kind. It was originally formulated in 1955 for municipal treatment plants, and has been reformulated specifically for house hold waste. The septic system is a small, on-site sewage treatment and disposal system buried in the ground. The septic system is comprised of a septic tank and soil absorption area.

The septic tank was patented in London around 1900. Webster's dictionary defines the septic tank as "a tank in which waste matter is decomposed through bacterial action. "The modern septic tank is a water tight box usually made of precast concrete, concrete block, or reinforced fiberglass. Then household waste material enters this box, several things occur.

GROUND LEVEL



1. Organic solid material floats to the surface and forms a layer of what is commonly called "scum" Bacteria in the septic tank biologically converts this material to a liquid
2. Inorganic or inert solid materials and the by-products of bacterial digestion sink to the bottom of the tank and form a layer commonly called "sludge."
3. Only fairly clear water should exist between the scum and sludge layers. It is the clear water and **ONLY CLEAR WATER** that should overflow into the soil absorption area. Solid material overflowing into the soil absorption area should be avoided at all costs.

It is the solids overflow that clogs soil pores and causes a septic system to fail. Two main factors cause solid material to build up enough to overflow: bacterial deficiency and lack of sludge removal.

Bacteria must be presented in the septic tank to digest the organic solids. Normal household waste provides enough bacteria to digest the solid **UNLESS** any harm is to the bacteria. Bacteria is very sensitive to environmental changes. Many home-care products used in most of the homes every day will destroy bacteria. Check the labels of products you normally use. Labels carrying any of the following warning will kill bacteria.

- Harmful or fatal if swallowed

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- Avoid contact with skin
- Do not get in open cuts or sores
- If comes in contact with eyes, call a physician immediately.

Check the following list. These are commonly used home care products that will kill bacteria necessary for proper septic tank operation. Many of these products are used in most homes on a daily basis: Detergents, bleach, polishes, Disinfectants, acids, skin & tum cleaners, Toilet cleaners, cleaning compounds, caustic drain openers.

People do not think of the effect of these products on the septic system when the products go down the drain. What kind of
Effect do you think anti-septic have on your septic tank?

Bacteria must be present to digest and liquefy the scum. If not digested, the scum will accumulate until it overflow, clogging the soil absorption area.

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Aerobic bacteria are crucial to an aerobic system as these bacteria create microorganisms that break down most solids. This process allows cleaner effluent leave the septic tank. The treated effluent is then gravity fed or pumped out of the septic tank into the leach fields. When solids are not broken down properly, they may plug up pumps and/or leach fields costing hundreds of dollars in repairs.

