Planning to Build -

Need a

Septic System?

Guide For

Septic System Permits

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WHAT IS AN ONLOT SEWAGE DISPOSAL SYSTEM (SEPTIC SYSTEM)?

If you've always lived in an urban area, then your sewage was probably disposed of via a public sewage system. Public sewers are generally available in densely populated communities or areas containing a high percentage of businesses. The sewage is collected throughout the house then piped to a common sewer line, ultimately ending up at a sewage treatment plant. The raw sewage is then processed and chlorinated to kill the harmful bacteria, and then the effluent is discharged into a nearby river or another waterway.

When you move out into more rural areas, sewage treatment plants are less common. A septic system *I* onlot sewage system is generally the method used to treat and process wastes from homes on an individual basis.

An **onlot sewage system or septic system** is defined as a network of piping, tanks or other facilities for collecting, treating, and disposing of sewage into a soil absorption area or spray field or by retention in a retaining tank. They require soils testing to determine site suitability and a permit from the Allegheny County Health Department (ACHD) once that suitability has been established.

The regulations governing septic systems were developed by the PA Department of Environmental Protection (DEP). The ACHD, as the local agency, carries out these regulations on behalf of the DEP and assumes responsibility for the testing and permitting of new and repaired systems.

A septic system is composed of two fundamental parts:

1. The septic or aerobic tanks, and
2. an absorption area.

The purpose of the **septic tank** is to remove the settleable and floatable solids from the wastewater. Anaerobic bacteria in the tanks work on the solids to 'digest' them and help break them up. If an **aerobic tank** is used, air is pumped into the tanks to aid the settling and digestion processes. As these solids settle to the bottom of the tank, the remaining liquid effluent is allowed to flow out of the top of the tank to the absorption area.

The **absorption area** relies upon the ability of the soil to filter and treat the effluent before it reaches the water table. It is necessary to remove as much of the solids as possible, so the absorption area does not become clogged. Proper maintenance of the septic tank or aerobic tanks will help prevent costly repairs to the absorption area.

WHAT CONSTITUTES SEWAGE?

Sewage is defined as a substance that contains waste products or excrement or other discharge from humans or animals and noxious or deleterious substances being harmful to the public health, or to animal or aquatic life, or to the use of water for domestic water supply or for recreation. This term includes 'grey water' from bathtubs and laundry facilities or any other non-potable water source. If these types of waste are generated from a residence served by a septic system, then they need to be piped into the septic system and not allowed to run to the surface of the ground.

Sewage is produced from a variety of sources in the average home. The approximate breakdown of the waste is as follows: 40% from toilets, 30% from showers and bathtubs, 15% from laundry, 10% from kitchen waste, and 5% from miscellaneous sources. As you can see the bathroom generates about 70% of all waste from your home.

TYPES OF SEPTIC SYSTEMS (ILLEGAL)

There are a variety of different septic systems in use in Allegheny County. Some of these meet current standards, but many do not. Before the formal regulations were established and put into use on May 15, 1972, many versions of tanks and piping were put into the ground and called a septic system.

Cesspools and seepage pits are examples of systems which were commonly used prior to the formal regulations established May 15, 1972. A cesspool basically consists of an open pit, which is then lined with open jointed walls constructed of brick or concrete blocks. The bottom is open to allow for settling of the solids and the liquid effluent seeps through the openings between the bricks. Seepage pits have septic tanks for the settling of solids, but also have an open pit to which the effluent drains. This pit is often lined with a layer of rock or aggregate around the bricks or block and the open bottom to allow seepage of the liquid into the surrounding soil.

Both of these systems are illegal by today's standards, as they do not have a basis for testing the site nor provide for a controlled method of effluent distribution into the soil. The current regulations require better treatment of the effluent than either of these systems can provide. These older systems frequently lead to the contamination of ground water due to improper renovation of the effluent prior to reaching the water table. Current methods of sewage disposal have been designed to provide for better renovation by using a larger soil area to absorb the effluent and provide aerobic conditions which are more effective in treating the wastewater.

If either of these systems are in use at an existing home and are not showing signs of malfunction, they may continue to be used until public sewers are available or the system needs repaired. At that time the system would have to be abandoned or repaired/replaced to meet current criteria.

If you own a home on a septic system or are thinking of buying one which uses one, it is important to take the time to find out the type of system in use and where it is located on the property. If the permit and design information are available, you should try to get a copy of it. This will be valuable information to have should you experience a problem in the future and so you may maintain the system to keep it in optimal working condition.

SEPTIC SYSTEMS AND TANKS (LEGAL)

There are several types of septic systems for which the ACHD may issue permits. The most common conventional onlot system is an elevated sand mound. The ACHD is also involved with the testing and permitting of some experimental or alternate technology systems as well as repairs including those using best technical guidance. Alternate technology systems may require soil testing performed by a Professional Soil Scientist. There are a number of alternate systems that the ACHD issues permits for included, but not limited to: alternate at-grade bed system, alternate drip irrigation system and micromound system. Each of these types of systems has specific requirements which must be met in order to qualify for permitting. (Onlot system component matrix).

Onlot System Component Matrix

Absorption Area	Component Classification and Secondary/Advanced Treatment Options	Slope	Minimum Suitable Soil Depth to a Seasonal High-Water Table Limitin2 Zone	Minimum Suitable Soil Depth toa Rock Limiting Zone	Percolation Rate
Elevated Sand Mound	Conventional	0-12%	20 inches	20 inches	3-180 minutes per inch
Seepage Bed	Conventional	0-8%	60 inches	60 inches	6-90 minutes per inch
Standard Trenches	Conventional	0-25%	60 inches	60 inches	6-90 minutes per inch
IRSIS	Conventional	0-04% 0-12% 0-25%	10 inches	16 inches	Not required
At-Grade Absorption Area	Alternate	0-12%	48 inches	48 inches	3-180 minutes per inch
At-Grade Bed with Peat Filter Option 1	Alternate	0-12%	20 inches	20 inches	3-60 minutes per inch
At-Grade Bed with Free Access Gravity Sand Filter Option	Alternate	0-12%	20 inches	20 inches	3-180 minutes per inch
A/B Soil System with At-Grade Bed	Alternate	0-12%	10 inches	16 inches	With a limiting zone of 2:,20 inches - 3-180 minutes per inch 20 inches With a limiting zone of <20 inches - a soil scientist must do a soil morphological evaluation
Drip Irrigation	Alternate	0-25%	20 Inches	20 Inches	None - a soil scientist must do a soil morphological evaluation

American PERC- RITE micromound	**Alternate**	**0-15%**	**10 Inches**	**16 Inches**	**None - a soil scientist must do a soil morphological evaluation**
Steep Slope Elevated Sand Mound Beds	**Alternate**	**≥12-≤15%**	**20 inches**	**20 inches**	**3-30 minutes per inch**
Leaching Chambers as aggregate substitute in seepage bed or trenches, elevated sand mound bed or trenches, subsurface sand (media) filter bed or trenches		**Must meet the absorption are regulatory requirements.**	**Must meet the absorption are regulatory requirements.**	**Must meet the absorption are regulatory requirements.**	**Must meet the absorption are regulatory requirements (Up to a 40 percent reduction in absorption area may be taken in some cases.)**

Elevated Sand Mound Absorption Area (Conventional System)

The most common "standard/conventional" system permitted by the ACHD is elevated sand mounds. The absorption area for an elevated sand mound system serves the same purpose as one for a standard trench system or any other type of septic system. These systems are often called mounds, sand mounds, sand hills, or above ground systems. It is a common misconception that 'if you cannot get a septic system, you can get a sand mound'.

It is important to realize that an elevated sand mound, like any other septic system, has specific criteria which must be met in order to qualify for such and it is not a last resort or your only option. The ACHD is obligated to follow the State's rules in Allegheny County as anywhere else in the Commonwealth and will not issue permits unless the site meets the established guidelines.

The elevated sand mound is an above-ground system and is used when the soils testing reveals shallow limiting zones, poor permeability, and poor drainage characteristics. The allowable slopes for these systems are 12% for bed or trenches and up to 15% for a steep slope sand mound. Again, soil testing is critical to determine which type of system can be installed.

The elevated sand mound is an above ground system. To prepare for installing the absorption area, it is necessary to clear the site of brush, cut small trees even with the ground, and chisel plow the top soil to 'rough it up'. Sand is then carefully placed on this 'roughed area' with lightweight equipment. The amount of sand is built up to a specific depth as determined by the soils testing, a layer of aggregate, the perforated piping system, more aggregate, 2-inch layer of hay, straw, geotextile fabric, untreated building paper, or similar material, more sand, and finally a layer of soil. A berm of soil is placed around the top and perimeter of the mound in order to protect it and to provide a base upon which vegetative cover may be planted.

These systems have pressurized dosing tanks. The purpose of the dosing tank is to assure even distribution of the effluent into the absorption area and to give the absorption area a rest between doses rather than having a continuous flow entering it. This type of system does require some routine maintenance of the mechanical parts of the pump and the alarm system.

ALTERNATE SYSTEMS

Alternate systems may be used to serve residential development or other facilities producing sewage. Alternate onlot systems require proper operation and maintenance to assure adequate sewage treatment over the life of the system. The following alternate systems and technologies have been determined to meet the criteria listed under the Pennsylvania Sewage Facilities Act; Title 25 Pa. Code Section 73.72. These are just a few examples of the alternate systems that the ACHD issues permits for within Allegheny County.

At-Grade Bed System

An at-grade system may be used for single-family residential proposals or other facilities with typical domestic wastewater flow characteristics. Septic tank installations must consist of either a two-compartment rectangular tank or two rectangular tanks in series. Evaluation of the soil profile must show that there is greater than or equal to 48 inches of suitable soil. The percolation rate must be between 3 and 180 min/in. The slope of the installation site must be less than or equal to 12 percent. A minimum of a total of 10 inches of coarse aggregate must be used. The absorption area shall be constructed in accordance with one of the two following options, at the discretion of the designer.

Aggregate shall be placed over the laterals to a uniform depth of 2 inches. Aggregate shall be placed beneath the laterals on contour to a uniform depth throughout the absorption area. The upslope laterals shall be placed 1 foot from the upper edge of the aggregate. The downslope laterals shall be placed 6 feet from the downslope edge of the aggregate. There is no minimum distance between the upslope and downslope laterals. All laterals must terminate 2 to 5 feet from the ends of the aggregate. The design shall include a 3-foot subsoil berm around the ends and downslope side of the aggregate area in addition to the berm described below. A 2:1 slope shall be maintained on the subsoil berm.

-OR-

The laterals shall be installed level and spaced evenly over the absorption area. Aggregate shall be placed over the laterals to a uniform depth of 2 inches. Sufficient aggregate shall be placed beneath the laterals so that they are level.

The system must use a pressure-dosed distribution system.

Lateral and cleanouts are required.

The surface shall be chisel plowed across the slope, including the area under the berm.

Drip Irrigation System

The soils must be classified morphologically as either well drained or moderately well drained as determined by a soil scientist. Any soil scientist who is a professional member of the Pennsylvania Association of Professional Soil Scientists (PAPSS) or is a "Qualified Soil Scientist" is qualified to conduct the morphological evaluation necessary to site a drip irrigation system.

This system uses the technology by which effluent at the primary treatment level is distributed to the drip dispersal field using a configuration of components that consists of an automated controller, a septic tank(s), a pump tank(s), a hydraulic unit(s), and a network of flexible drip emitter tubing. Distribution of sewage to the drip dispersal field, network forward flushing, and for backflushing of filter was solids to the pretreatment train are activated by a controller. Through drip irrigation, wastewater is distributed in small dose volumes over an infiltration field to aid in maintaining the aerobic environment in the soil for biochemical treatment of the wastewater.

A/B Soil Systems (ABS System)

This system consists of a septic tank(s), dosing tank, recirculating subsurface sand filter, and UV disinfection, with final treatment and disposal using an at-grade absorption area designed in accordance with Part 9 or Appendix 5. The minimum vertical isolation distance is 10 inches between the aggregate and the seasonal high-water table or 16 inches between the aggregate and a rock formation.

Disinfection of the RSSF effluent prior to discharge to the absorption area is required. This disinfection must be achieved by means of ultraviolet (UV) light emitting equipment designed as described below. No other means of disinfection (such as chlorination) may be used, as it is essential to prevent negative effects on soil bacteria in the absorption area that may be caused by residual effects of disinfection.

Ultraviolet Radiation Equipment:

Ultraviolet radiation at a level of 254 nanometers must be applied at a minimum dosage of 25,000 microwatt- seconds per square centimeter at all points throughout the water disinfection chamber. However, a higher dosage may be required based on the specific transmittance of the wastewater. In lieu of determining the specific transmittance level of the wastewater, a dosage of 30,000 to 35,000 microwatt-seconds per square centimeter should be provided.

American Pere-Rite Micromound

This system uses technology by which effluent at either the primary treatment level or the secondary treatment level is distributed to the drip dispersal field using a configuration of components that consists of an automated controller, a septic tank(s), a pump tank(s), a hydraulic unit(s), and a network of flexible drip emitter tubing. Distribution of sewage to the drip dispersal field, network forward flushing, and for backflushing of filter wash solids to the pretreatment train are activated by a controller. Through drip irrigation, wastewater is distributed in small dose volumes over an infiltration field to aid in maintaining the aerobic environment in the soil for biochemical treatment of wastewater. Final discharge for distributing sewage will be to a drip irrigation micromound absorption area.

HOW DO I START THE PROCESS?

The first thing you need to do if you want to install a septic system on property for a new home or repair an existing septic system which is malfunctioning, is to contact the ACHD at (412) 578-8040 to obtain an application. If you receive an application and decide not to pursue an onlot permit, the application needs to be returned.

Instructions and a fee schedule will be included with the application. The **OWNER OF THE PROPERTY** will need to complete Part I and Part IV of the application and sign on the Property Owner's signature line. Then return it along with payment for the invoiced amount (payable by check or money order only) and a copy of the complete deed and plot plan (both showing the meets and bounds of the property) to: Allegheny County Health Department, 3901 Penn Avenue, Building #5, Pittsburgh, PA 15224-1318.

When the application package is received, it will be reviewed for completeness. The initial application fee includes reviewing paperwork and 4 deep pit soil evaluations. If the application is incomplete or there are questions about the information, an incomplete letter, describing any deficiencies, will be sent.

Before we will begin any soil testing, proof of payment of the initial invoice must be received by the ACHD and any requests for additional information must be satisfied. **THE OWNER IS RESPONSIBLE FOR CONTACTING OUR OFFICE WITHIN 10 DAYS AFTER PAYMENT OF THE INVOICE TO SCHEDULE THE SOIL TESTING.**

SOIL TESTING - DEEP PITS

The soil testing is the most important part of the process in determining whether or not the property is suitable for the installation of a septic system. The first part of this testing is the deep pit. The day of testing, a backhoe, and backhoe operator must be at the site. This service and equipment is not provided by the ACHD and arrangements for such are the responsibility of the owner. You can find this service in the yellow pages or online under backhoe, construction, or excavating contractors. You may also want to ask your neighbors if they know anyone who does this.

The day of the testing the owner, backhoe and backhoe operator, and Sewage Enforcement Officer (SEO) from the ACHD will be at the site. To do the test, the backhoe operator will be asked to dig a hole approximately 8 ft. long x 4 ft. wide x 7 ft. deep, with steps cut to allow easy access into the pit by the SEO. The SEO will then evaluate the soil to determine the limiting zone of each pit.

The **limiting zone** is the depth, from the topsoil down, at which a soil characteristic is identified which would prohibit the downward flow of sewage (such as clay) or would allow the sewage to flow through the soil too quickly (such as shale). In Western Pennsylvania the most common limiting zones identified are clay and mottling. **Mottling** shows a seasonal high-water table and produces a change in the background color of the soil causing a spotted color pattern which is easily identified at any time of the year.

When determining the limiting zone, the soil is measured with a tape measure from the topsoil down. The minimum allowable limiting zone is 20 inches for a conventional system; anything less than that will result in that deep pit evaluation being denied and you may be referred to a Soil Scientist. The limiting zone for a sand mound is 20 inches to less than 60 inches; for a seepage bed, it is 60 inches to less than 72 inches; and standard trenches, it is 72 inches or greater. The SEO may continue to evaluate different areas on the site as time and testable area allow. After the initial 4 deep pits, each additional pit will be billed separately.

At the same time the deep pits are done, the slope at each test site will be measured. Each type of system has specific slope requirements. The slope required for elevated sand mound beds and trenches is up to 12%, for steep slope sand mounds 13% to 15%, seepage beds 8%, and up to 25% for standard trenches. Approved sites with 15% to 25% slopes require detailed engineer-prepared plans. If the slope on a site is greater than 25%, the site would be denied. The results of the deep pit test and slope assessment tell you the type of system which potentially may be installed, such as a conventional system, i.e. elevated sand mound, or if the installation of an alternate system should be explored.

If the site has an acceptable limiting zone, combined within the required slope, then a percolation (perc) test may be scheduled. If the limiting zones or slopes do not meet the minimum requirements, no additional testing will be done, the site will be denied, and no permit will be issued. A denial letter will be sent. If an alternate technology system is possible, you may wish to contact a soil scientist to test for alternate systems. A list of soil scientists will be provided with the denial letter.

SOIL TESTING - PERCOLATION TEST

Simply put, a **percolation (perc) test** is a timed water test (see Figures 13, 14 and 15). This test is also conducted by the SEO and is done only if the site passed the deep pit/slope testing. Preparation for a perc test necessitates the owner digging a series of at least 8 holes with a post hole digger, within 10 feet of the approved deep pit. Gravel is put on the bottom of each hole, and the holes are presoaked the day before the test to simulate septic effluent conditions. The SEO will give you written directions for the preparation and will determine the depth of holes and gravel.

The day the perc test is run, it is necessary for the owner to have a sufficient quantity of water available at the site. The SEO will fill the holes with water to a certain level, and then over a period of time, up to 4 hours, will measure the drop in each hole. These figures then are calculated sutfo determine the perc rate in minutes per inch. This test tells how well the soil absorbs water and the results are used to determine the size. in square footage. the system's absorption area will be.

The perc rate also has a specific range requirement. If the water level drops more quickly than 3 minutes/inch or drops more slowly than 180 minutes/inch, that site would be denied and no permit would be issued. While perc rates which fall into the 3 - 180 minutes/inch range are acceptable, there are certain restrictions, based upon the type of system, as determined by the deep pit/slope testing, which would need to be used at that site. As with a deep pit test, if the site does not pass the perc test, a permit will be denied for that property, and you may be referred to a soil scientist for testing for an alternate technology system.

NOW THAT THE TESTING IS DONE WHAT DO I DO NEXT?

The property owner will receive a design letter regarding the type of septic system the site qualifies for. Using the results of the perc or soil scientist tests and the expected flow based upon the number of bedrooms or type of business planned by the owner, the size of the system is calculated. The owner generally will tum this information over to an engineering firm with experience in septic system designing.

Three (3) copies of the design are to be sent to the SEO who conducted the soil testing. The design will be reviewed for completeness and accuracy. If the design is not approved a letter will be sent to the property owner outlining the deficiencies which need corrected before the design may be resubmitted. Once the design is approved and all testing and inspection fees have been paid, the septic permit will be issued. If **the system is approved for an Alternate System only, or you choose to install an Alternate System, you will be required to submit a 3-year maintenance agreement before the permit will be issued.** You will receive the permit in the mail along with a copy of the design. Copies of the Permit will be sent the PA Department of Environmental Protection and the municipality where the onlot system will be installed. Permits are valid for 3 years from date of issuance, unless construction of both the structure and system have begun in which case the permit does not expire.

NOW WHAT HAPPENS?

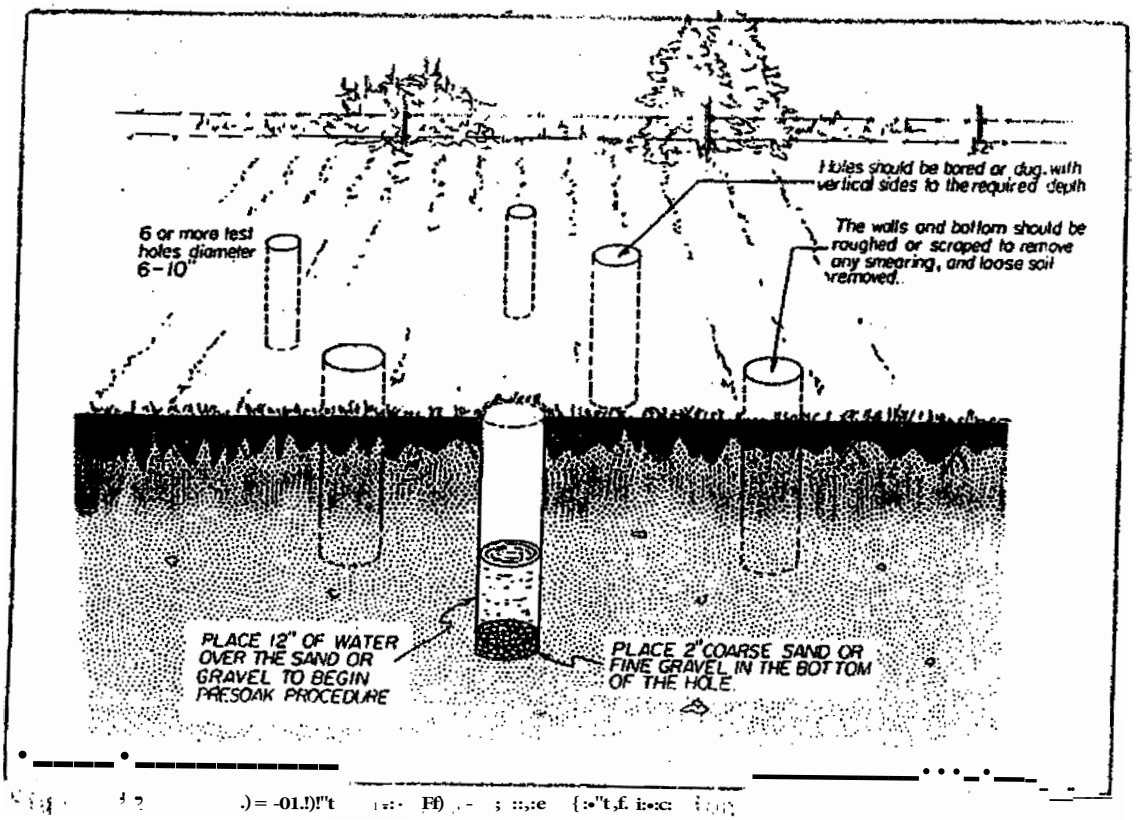
Once the permit for your septic system has been issued, you should be able to obtain a building permit from the municipality in which you plan to construct your residence or business. Whether you decide to install the septic system immediately, or wait until the structure is completed, it is important to protect the septic site or completed system. If construction is not started within 3 years of the permit issue date, and the property owner wishes to renew the permit, the SEO may conduct a site visit to verify the primary and backup site have not been disturbed before re-issuing the permit. If either site has been disturbed the permit will be revoked and not re-issued.

This is best accomplished by using construction tape to rope off the entire area needed for the installation of the septic tanks, dosing tank/distribution box, and absorption area. It is critical that the site remain undisturbed, and that no grading or filling occurs, nor any debris or building materials are stored on or around the area and no equipment is allowed to drive over the primary or back-up site. If the site should become disturbed and cannot be used, the permit will be revoked and new testing will.be required.

Once you are ready to begin construction of the septic system, the permit holder must call the SEO for a preconstruction inspection. At the time of this inspection, the SEO will make sure the area has been cleared properly and the septic absorption area has been staked out correctly. The SEO will verify that no changes have occurred at the site and answer any other questions you or your installer may have at that time.

THE FINAL STEP

When the piping, sand, trenches, tanks, and/or other components of the system have been installed, it is time for a final inspection. Once again, the owner must call the SEO to schedule this inspection. At that time, the SEO will assure that the various parts of the system are consistent with the design submitted and have been placed correctly.


6 or more test holes diameter 6-10"
Holes should be bored or dug with vertical sides to the required depth
The walls and bottom should be roughed or scraped to remove any smearing, and loose soil removed.
PLACE 12" OF WATER OVER THE SAND OR GRAVEL TO BEGIN PRESOAK PROCEDURE
PLACE 2" COARSE SAND OR FINE GRAVEL IN THE BOTTOM OF THE HOLE.

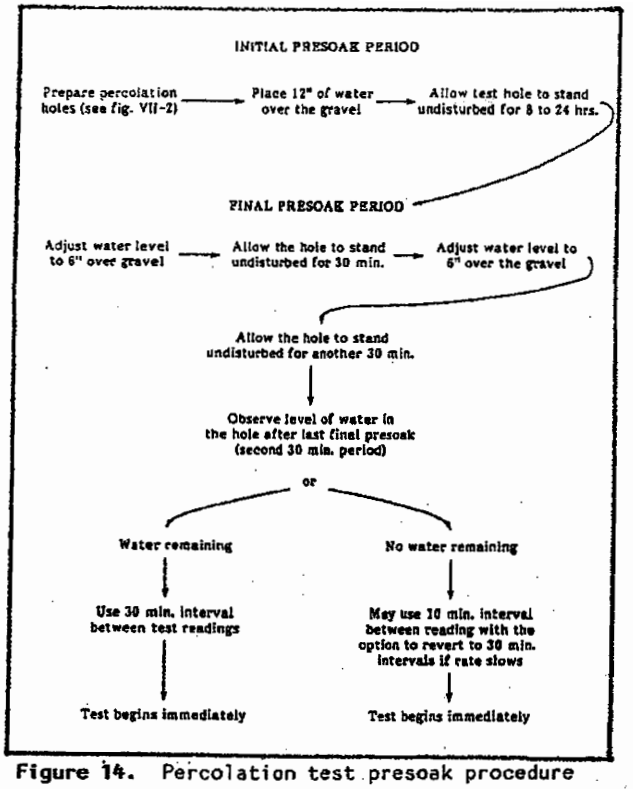


Figure 14. Percolation test presoak procedure

PERCOLATION TEST PROCEDURE

This is check sheet to assist you in conducting the percolation test. You must complete each step of the procedure as outlined below before the percolation test can begin.

PREPARATION OF TEST HOLES

Step Completed

_____ 1. Dig six or more holes at the location specified by the Sewage Enforcement Officer (SEO). If the SEO did not specify any arrangement, uniformly space the holes throughout the proposed absorption area at least 10-15 feet apart and within 10 feet of the deep pit location.

_____ 2. Dig each hole to a depth specified by the SEO.

_____ 3. Make sure that the holes have vertical sides and a uniform diameter of 6-10 inches.

_____ 4. Scratch the sides and bottom of each hole to completely remove all smeared soil surface.

_____ 5. Remove all loose material from the holes.

_____ 6. Place two (2) inches of coarse sand or fine gravel in the bottom of each hole to protect it from scouring and clogging of the pores.

PRE-SOAKING

_____ 1. Fill the holes with clear water to a minimum depth of 12 inches over the gravel at least 8 to 24 hours prior to the scheduled percolation test, as specified by the SEO.

_____ 2. At least one (1) hour before the percolation test is to be conducted, maintain at least 6 inches of water in each test hole.

_____ 3. Check the holes at ¼ hour intervals and add water to re-adjust the water level to maintain the 6 inches of water depth.

Please provide enough additional water at the site for refilling the test holes for a possible eight (8) consecutive readings at 30-minute intervals. Failure to follow the complete procedure specified above will result in cancellation of the percolation test. Canceled tests will be charged the full fee.

Figure 15. Percolation test procedure checksheet

Depending on the type of system, you may need to have a source of electricity and a supply of water available for the testing of the pumps, distribution system etc. The SEO will advise of such when you call to schedule this inspection.

After this inspection, if everything meets the state's codes, final approval will be given and the system may be covered. If there are inadequacies, then they must be corrected and another final inspection scheduled before final approval to cover the system is given.

LANDSCAPING AROUND THE SEPTIC SYSTEM

Once the septic system and absorption area have been inspected, approved by the SEO, and covered, there should be no changes in the grade of the soil around the absorption area. This is necessary to prevent any movement or shifting of the absorption area due to a change in the contours of the land.

What should be done in the case of any sand mound system is to immediately plant grass on the absorption area to prevent erosion. You should avoid planting trees or bushes in or around the absorption area as the roots from these could clog or otherwise damage the system. It is also a good idea to divert storm runoff, roof gutters, etc. away from the absorption area to prevent any undue stress to the system from an overabundance of water into or around it.

Septic systems are really a temporary means of sewage disposal and must be maintained in order to keep them in top operating condition. The life expectancy will be greatly reduced if the components are not properly cared for or abused.

SEPTIC TANKS

The most important maintenance procedure to perform on the septic tanks is to regularly pump out the solids and sludge layer which builds up in them. The frequency with which this must be done depends upon the capacity of the septic tanks, amount of wastewater generated, and volume of the solids in the wastewater. The more people in the household, the more often the tanks will need to be pumped. Also, if a garbage disposal is in use that will add to the volume necessitating more frequent pumping.

In general, the average home should need the septic tanks pumped out every 2 to 3 years. This should be done by a reliable septic waste hauler who is licensed and permitted to perform this service. The pumping of the liquids and solids in the tanks is done by locating and digging up the manhole cover on the tank, removing the manhole cover, and then dropping a large hose into the tanks. The hose is attached to a vacuum type truck, which provides powerful suction through the hose, drawing the solid and liquid waste out and into the tank on the truck.

Sometimes the solids form a heavy sludge which needs to be broken up. This is accomplished by forcing some of the liquid from the truck back into the septic tanks, to break up and loosen the solids so they may be drawn out. Once the septic tanks are emptied, a visual inspection of the tanks should be conducted to see if there is any noticeable damage or cracks. Never enter a septic tank for any reason. If a problem is noted, the tanks should be removed and replaced if necessary.

Before the manhole cover is replaced the homeowner may want to also flush a toilet or run some water to be sure the sewage is going into the tanks. This being the case, the septic hauler should replace the manhole cover, and if the area had been dug up the owner should replace the soil and replant grass seed.

AEROBIC TANKS

The mechanical portion of an aerobic tank needs routine maintenance and should only be worked on by a trained professional who is familiar with their operation. These tanks must be pumped out every year by an approved and licensed waste hauler. At that time, the moving parts of the tanks should be inspected and any worn or broken parts replaced. The homeowner should check the tank at least once a month to be sure it is running smoothly. Always remember to tum off the power to the unit before servicing it or allowing anyone to work on it.

DOSING TANK

Dosing tanks should be pumped out at the same time the septic tanks are pumped. This is done by locating and digging up the manhole cover and having the liquid waste drawn out through a hose under powerful suction. The pump, alarms, and other controls should be checked once the tank is emptied. The vent tube should be cleaned and checked, and the unit visually inspected for cracks or leaks.

As with the aerobic tank, the homeowner needs to make sure the power is off before working on the tank or allowing anyone else to work on it. This unit needs to be periodically checked to make sure it is operating properly and dosing the effluent at the specified intervals.

ABSORPTION AREA

The absorption area, (trenches, seepage bed, sand mound, etc) need very little maintenance over the course of the life of the system. As long as the septic tank is doing its job of removing solids from the wastewater, so that only liquid is going into the absorption area, it should last a reasonable amount of time. If solids begin to get into the absorption area it can cause the system to malfunction by clogging the piping which distributes the effluent.

The following are some other suggestions for protecting the absorption area and thereby prolonging its life span:

Do not allow vehicles or heavy machinery to drive over the tanks or the absorption area. This could cause the tanks or piping to crack or break, or the soil could become compacted making it difficult for the effluent to move downward and renovate properly.

Do not install a swimming pool, artificial pond, or any other structures too close to the absorption area.

Avoid planting trees, bushes or other plant life which may develop an extensive root system which could penetrate the system and clog the piping.

Direct runoff, roof drains, or other water sources away from the absorption area.

Do not over use household chemicals, especially bleaches and drain cleaners as they disturb the natural bacteria necessary for proper digestion of the waste.

Do not grade or fill in the immediate area if it will cause pooling of water or water to be direct towards the absorption area.

Check indoor plumbing fixtures periodically to identify and repair leaks which create an extra burden on the system.

Do not try to move the system, add to it, or dig it up for any reason as this could make it unusable. If you suspect a problem, call a professional to determine what is wrong and call the ACHD, as this would likely require a permit.

WATER CONSERVATION MEASURES YOU CAN TAKE

The better you are at reducing the amount of wastewater your septic system has to process, the longer you can expect it to last. The following is a list of simple rules to conserve water, which helps your septic system and helps the earth. Most of these suggestions cost nothing; all you have to do is remember them.

Do full loads of laundry or at least select the appropriate water level. Try not to do multiple loads one right after another. Consider replacing an old washing machine with one that has a suds saver feature to save even more water and the energy needed to heat the water.

Run the dishwasher only when it is full, do not pre-rinse dishes being washed in a dishwasher unless absolutely necessary.

When possible, limit toilet flushing and toss wet toilet paper in the garbage can. There's an old adage that goes 'if it's yellow let it mellow, if it's brown flush it down'.

If you like to drink cold water, keep a bottle or pitcher in the refrigerator for to keep it cold, rather than letting the water run to get a cold drink.

When you brush your teeth, do not let the water run, instead wet your toothbrush, shut off the water, and then use a small glass to get water to rinse.

Fix leaking fixtures as soon as possible.

Consider installing water saving devices. Replace old toilets with newer low flush ones. Install aerators or water reducing valves on shower heads and sink spigots to slow the water flow.

Take showers instead of baths and keep an eye on the amount of time you spend in the shower.

Fill the sink halfway when you shave.

Do not use garbage disposals.

If you wash dishes by hand, fill a dish pan with water for washing, and another to rinse them clean.

Fill 2 buckets, one with soapy water, and the other with clean water, when cleaning around the house.

WHAT NOT TO PUT DOWN THE DRAIN

The decomposition of the waste products that takes place in the septic tanks is due to the action of bacteria. These bacteria while small comprise a living biomat that can easily be disrupted by a variety of things, thereby reducing their ability to treat the sewage. You should avoid placing the following materials into a septic system:

Pesticides
Oils and grease
Harsh chemicals or drain cleaners
Paint and paint thinners
Paper towels
Plastic items (plastic bags, toys, etc.)
Disposable products such as diapers or sanitary napkins (also a source of plastic)
Coffee grounds, egg shells, bones, fruit/vegetable skins
Hair, especially from animals

REPAIRS

If you experience a problem with your septic system, either sewage is pooling in your yard or your neighbor's yard, or backing up into the house, there may be a solution for you. If the source of the problem has been identified as your septic system, call the ACHD for advice on how to proceed to correct the problem. The process is pretty much the same as described for getting a permit for a new system for a new house.

You'll need to obtain and complete an application package, returning it to the ACHD. In the instruction letter is information concerning what repairs do and do not require a permit from the ACHD. The following repairs require a permit:

Replacing of septic, dosing or aerobic tanks
Increasing the size of the absorption area
Replacing the absorption area
Installation of an alternate absorption area

These items do not require a permit from the ACHD:

Pumping septic, dosing or aerobic tanks
Repairing cracked or broken pipe in absorption area
Repairing wiring or broken pump
Leveling the distribution box
Installing water saving devices, if fixtures are changed a plumbing permit may be needed

TABLE 1

SUBDIVISION

PLANNING PROCESS

DATE LOT WAS CREATED	NUMBER OF APPROVED SITES NEEDED PER LOT	PLANNING MODULES NEEDED	APPROVAL NEEDED BEFORE PERMITS ARE ISSUED
May 15, 1972 or before	1	No	ACHD
May ·1s, 1972 to June 10, 1989	2	Possibly, pending municipal review / decision	Municipal approval before ACHD will issue permit
June 10, 1989 and after	2	Yes Unless site(s) meet DEP's exemption criteria	ACHD Municipal DEP

SUBDIVISIONS

A **subdivision** is defined as the division or redivision of a lot, tract, or other parcel of land into two or more lots, tracts, parcels or other divisions of land including changes in existing lot lines. The enumerating oflots shall include as a lot that portion of the original tract or tracts remaining after other lots have been subdivided there from. Simply put, if you create a new lot or lots from an existing piece of land, that is a subdivision.

The planning process involved with subdivisions is designed to make sure no new lots are created that do not have an approved means of sewage disposal. Unfortunately, many times the landowner manages to create lots, without testing being done, and the unsuspecting buyers purchase the lots and end up having to conduct the soils testing. Sometimes these buyers end up with no suitable sites for sewage disposal, and they sue the previous owner for selling them a piece of unusable property. However, if you were told at the time of purchase that the property had not been tested you will probably lose your lawsuit.

If there is a piece of property you plan to sell or buy and will use a septic system on the lot as the means of sewage disposal, then you should let the ACHD know when you call for your application package so we can send the necessary forms and information you will need to carry out this process. There are specific dates which are looked for on the deed for the property that tells us if we are dealing with a subdivision (Table 1). If the proposed lot or lots existed prior to May 15, 1972, no planning is needed. If the lot or lots were created after May 15, 1972 and before June 10, 1989, the sites will likely qualify for reconstructive planning. If the lot or lots were or will be created after June 10, 1989, then planning modules will likely need completed.

The differences in how each of these is handled is as described. Lots created and deeded before May 15, 1972, deep pit and perc testing must be done. Only one approved site is required on these lots. A permit would be issued after review of an approved design and payment of all fees.

Reconstructive planning is used for a lot or lots created after May 15, 1972 and before June 10, 1989. These are lots which have not been tested but have deeds and plot plans. Applications for these types of conditions are handled are a bit different. Soils testing is required on the particular lot being sold/purchased; however, 2 approved sites must be identified. If developed, the original parcel from which this lot came must have its septic system visually inspected for signs of malfunctioning. If that system is malfunctioning it would be required to be repaired before a permit could be issued for the vacant lot.

Once the soils testing has been completed and no malfunction of the system on the parent parcel has been identified, a letter is sent to the municipality advising them of our findings, and that a permit for a septic system will be issued within 30 days unless the municipality objects. If no objection is raised, a permit would be issued by the ACHD after an approved design is received and reviewed and all fees are paid.

The last scenario involves lots which will be or have been created after June10, 1989. When dealing with lots that fall under this date, Planning Module Components (PMC's) are almost always required. This process entails testing all lots, which will be or were created, and identifying 2 approved sites on each lot in the subdivision, as well as visually inspecting, and proof of a passed dye test conducted by a 3rd party on the existing systems on developed lots.

This type of subdivision generally requires the use of PMC's to facilitate their processing. The DEP issues final approval to subdivide. All necessary information, test results, and signed PMC's are sent to DEP for final review and approval. DEP then sends a letter indicating whether or not they approve or deny the proposed subdivision. If approved, the ACHD is advised and we will ask for a design of the onlot system to be submitted. After the design is reviewed and approved and all fees are paid, a permit may be issued.

Well, if you are thoroughly confused by now, it's understandable. The rules governing subdivisions are quite confusing, and the rules covering everything about septic systems are equally perplexing. They have undergone many changes since their inception and will likely continue to in an effort to keep up with technology and ever increasing demand for environmental protection as well as people's desire to use and develop their land.

TROUBLE SHOOTING TIPS FOR ONLOT SEWAGE SYSTEMS

PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTION
Raw sewage is backing up into house	Line from toilet to tanks is clogged	Contact plumber to clean/unclog line
	Septic tank is full and needs pumped out	Contact an ACHD approved waste hauler to pump tanks
	Absorption area may be beginning to malfunction	Contact the ACHD for guidance
Sewage odors in the house/business	System may be backing up inside structure	Septic tanks may need pumped
	Vent stack may be blocked	Contact a plumber to remove blockage
Soft/spongy/wet ground around the septic tank, distribution box, or absorption area	One or all of these components may be broken, cracked, or have shifted	Contact your septic installer to determine definite cause. Contact ACHD for permit, as needed
	Absorption area malfunctioning	Contact ACHD for guidance and permit to replace absorption area
Toilets or tubs draining slowly	Septic tank is full	Contact an ACHD approved waste hauler to pump tanks
	Absorption area may be failing	Contact ACHD for guidance
Raw sewage is surfacing in one spot within the absorption area	Broken or cracked pipe	Contact your septic installer to replace the damaged pipe
	Distribution box not level	Contact septic installer to re-level distribution box
Raw sewage surfacing in several places within the absorption area	Absorption area failing. Determine if use has increased or other sources of water are entering the system	Contact ACHD for guidance

PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTION
Dosing pump runs constantly	Septic effluent may not be pumped out of tank	Contact your installer for repair
	Crack in dosing tank allows ground water to infiltrate tank	Divert roof drains or any other surface water away from absorption area
	Clog in the absorption area prevents dosing tank from pumping effluent	Contact ACHD for guidance
	Absorption area may be failing	Contact ACHD for guidance
Dosing pump does not run	Power supply to pump may be shut off	Restore power/tum pump switch back on
	Electrical connections shorted out or eroded	Contact your installer for repair
	On/off switch malfunctioning	Contact your installer to repair/replace faulty switch
Dosing pump takes a long time to pump out	Piping in the distribution system may be clogged	Contact your installer about cleaning out the pipes
	Pump may be malfunctioning	Contact your installer to check pump and repair as needed
Sewage surfacing around dosing tank	Pump not able to move effluent out fast enough	Contact your installer to have pump adjusted
	Distribution piping clogged	Contact your installer to have the pipes cleaned out
	Dosing tank cracked and surface water is getting into it	Divert roof drains or other sources of surface water away for the dosing tank
Dosing tank alarm goes off	Dosing tank is full of solids	Contact an ACHD approved waste hauler to pump tank
	Dosing tank delivery pipe clogged	Contact your installer to have the blockage removed
	Malfunctioning alarm or electrical wiring	Contact your installer to repair/replace faulty switch or wiring

This publication is brought to you by:

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