



Fact Sheet

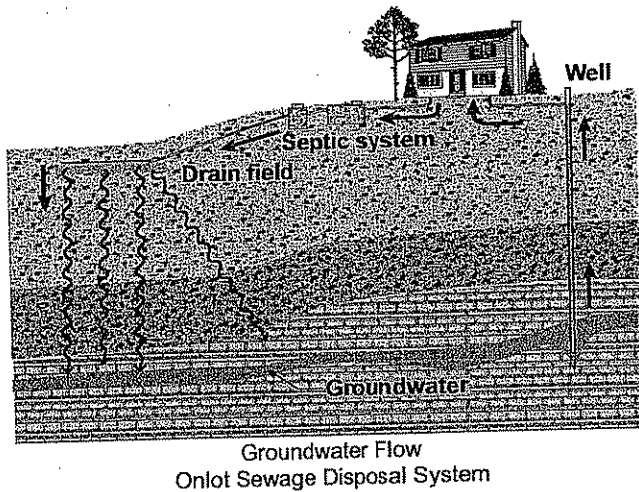
Commonwealth of Pennsylvania • Department of Environmental Protection

ACT 537 #9

UNDERSTANDING THE IMPORTANCE OF SOILS IN SITING AN ONLOT SYSTEM

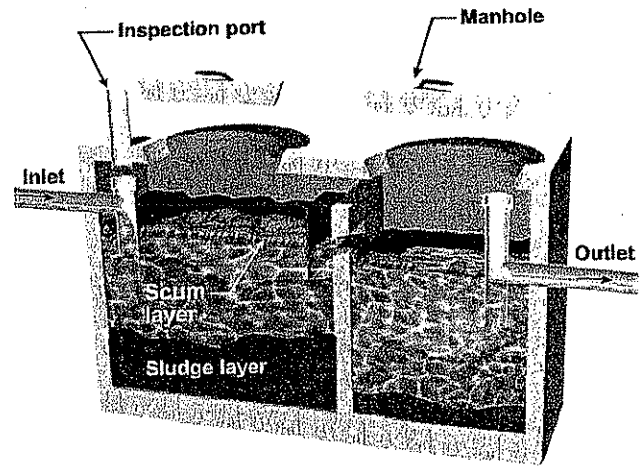
Why is having a properly functioning onlot system important?

Groundwater is the primary source of drinking water in areas served by individual and community wells; therefore, keeping the groundwater free of contamination is very important. Water that carries sewage from a household or business to an onlot sewage disposal system (sometimes called a septic system) will eventually re-enter this same groundwater. Onlot systems, when properly designed, operated and maintained, will treat this wastewater so that it may safely be used again. Onlot systems that are not functioning properly do not treat sewage to a level that is safe and can discharge improperly treated sewage to the surface of the ground and/or to groundwater. Improperly treated sewage carries bacteria and viruses known to cause many human diseases, such as gastroenteritis, diarrhea and dysentery.



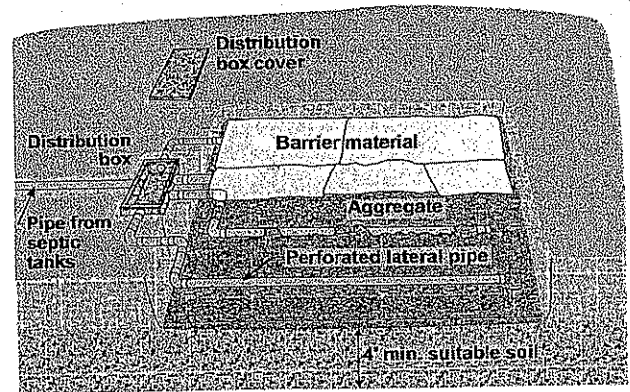
How does an onlot system treat sewage?

The sewage from household plumbing first enters a treatment tank, where primary treatment occurs. The heavier solid matter settles to the bottom of the tank, where microorganisms feed on and break down the waste. Lighter fats, oils and greases float to the top of the tank, forming a scum layer. Wastewater leaving the treatment tank is cleaner, but still contains disease-causing bacteria and viruses, as well as other contaminants, which must be further treated before reaching groundwater or other water supplies.



Treatment Tank

From the treatment tank, the partially-treated sewage passes through a distribution system of piping and into a bed of gravel (aggregate). The sewage flows over the gravel and then into the underlying soil. In a properly sited onlot system, further treatment is provided by this soil. The soils are the most important part of your onlot system because they provide a treatment "barrier" between untreated sewage and water supplies.



Soil Absorption Area

What soil conditions are needed to treat sewage?

About four feet of suitable soil is needed under the gravel layer to treat sewage. Good soil for sewage treatment is relatively free of rock and not saturated with water. The soil structure must allow the liquid waste to

pass through at a suitable rate. The waste must pass slowly enough to allow the microorganisms time to feed on the harmful material, yet fast enough to dispose of the amount of liquid waste entering the absorption area. While soils rich in clay treat sewage most effectively, the fine pores of many of these soils slow the downward movement or percolation of sewage, which may cause backups to the surface of the ground. Soils rich in sand allow rapid percolation to dispose of sewage but do not hold the sewage long enough to treat it adequately before it reaches groundwater. Treatment continues in the soil until rock or soil saturated with liquid is encountered. Rock allows sewage to move quickly into groundwater without proper treatment. Saturated soils do not provide the aerobic (oxygen rich) conditions needed by microorganisms to treat sewage.

Partially treated sewage reaching either rock or saturated soils will enter the water supply. Any contaminants or disease-producing organisms present in the sewage will be in the glass of water you drink from your polluted well. Viruses can survive in groundwater in excess of one year.

How do I know if my soils will properly treat sewage?

As part of the evaluation of a building lot to be served by a septic system, the sewage enforcement officer (SEO) employed by your local or county government evaluates soils by examining a soil profile. This is an excavation (commonly called a soil profile or deep probe) of the soil near the proposed location of the absorption area. The SEO enters the excavation to evaluate the soil's texture, structure and color. The SEO also looks for signs of rock and saturated soils. A percolation test is performed to determine soil permeability (the rate of water movement through the soil). If the results of these soil tests show that the soils can properly treat sewage, a system may be installed. If there are problems with the soils, systems designed to overcome these soils limitations, such as an elevated sand mound, may have to be used. If the soils are unsuitable, no septic system may be installed. This is why it is important to have soils testing done before committing to the purchase of a building lot.

How does water move through the soil?

Rain and other sources of water move through the soil until the water reaches a barrier (called a limiting zone). In some cases, rock or tight layers of clay will slow down water movement and cause saturation of the soil above the barrier. During wet periods in the fall or spring, these water levels rise close to the surface of the soil. The closest the water table comes to the surface of the ground is called the seasonal high water table. In drier periods of the year, the water level drops. If the water table rises close to the surface within a septic system's absorption area, the soils will become saturated and cannot treat sewage. If the depth of this seasonal high

water table is too close to the surface, the site may be unsuitable for any soil-dependent onlot system.

If an SEO evaluates a soil profile during the wettest part of the year, water will usually fill the hole to the level of the seasonal high water table. At other times of the year, this water table may be below its highest level, and the SEO must look for other evidence of the highest level the water will reach. The SEO looks for soil structure, signs of restrictive layers of soil, depth of root penetration and soil mottling.

What is soil mottling and why is it important?

Soil mottling is a contrasting or "blotchy" color pattern within the dominant soil color. It is formed when the seasonal high water table rises into aerobic soils changing the conditions in the soils from aerobic (oxygen rich) to anoxic (without oxygen). The types of bacteria that can live under these two conditions are different. Bacteria living under aerobic conditions die when the water table rises because the oxygen in the soil is replaced by water. Anoxic bacteria begin to thrive because they can use certain oxides (oxygen bonded to iron and manganese) in the soil to survive. When the bacteria use the oxygen bonded to the iron and manganese, these minerals change color and dissolve into the water around them. When the water level begins to drop, these dissolved minerals stick to the surface of soil particles as yellow, red, orange, brown, blue or black coatings or a combination of these colors. Areas from which all of these minerals were removed because of long saturation periods become gray in color (called soil gleying).

The SEO can use soil mottling and soil gleying as indicators of a seasonal high water table regardless of what time of year the soils are evaluated. Any sewage reaching this water table, without first passing through a minimum of four feet of suitable soil, will enter the water table improperly treated. In saturated soils caused by seasonal high water table, sewage often backs up onto the surface of the ground because the soil already contains all of the liquid it can absorb. Soil clogging also occurs in the absorption area as slime produced by anoxic bacteria accumulating in the soil, gravel and piping.

Is mottling the reason a site is not suitable for use of a septic system?

No. The reason a site would be found to be unsuitable for an onlot system is that the mottling found at a specific depth documents that the seasonal high water table reaches that level. The seasonal high water table is the reason the site is unsuitable.

Are the colors of mottled soils and the amount of color the same in all soils?

No. Factors such as the length of time the soil is saturated each year, the original soil color, the amount of iron and manganese oxides in the soil, the amount of

oxygen trapped in the soil during saturation periods, the soil temperature, and the types of bacterial populations in the soil all can influence the color and intensity of mottling in the soil.

Does the amount of mottling or the intensity of the color influence the SEO's decision regarding suitability of the lot for septic system use?

No. The tests for other factors that influence mottling are unreliable and complex. The SEO must make a decision regarding seasonal high water table based primarily on the presence or absence of a uniform depth of soil mottling or direct observation of water in the soil profile. This determination may be supported in some cases by additional information, such as the presence of deeper restrictive layers of soil or rock which would cause the seasonal water table to rise in the soil.

Doesn't mottling only occur in clay soils in lowland areas or flat areas near streams where drainage is poor?

All soils containing manganese or iron oxides, even sandy soil or well drained soils, will produce mottling when saturated because of a seasonal high water table. While lowlands, flat areas and areas near streams commonly have mottled soils, many other areas, including uplands, hillsides, farmland and wooded land, may also have mottled soils. This is because the presence of restrictive layers in the soil is very common in this state. These restrictive layers, as discussed before, often cause seasonal high water tables and the accompanying mottled soils.

My property has a seasonal high water table, so I conducted a percolation test during dry weather. The percolation test passed. Does that mean that the system will work even though there is a seasonal high water table at a depth which makes the lot unsuitable for an onlot system?

No. A percolation test conducted during dry weather may result in an average rate that falls within the acceptable range. This may occur when the water table has dropped below the depth of the percolation test holes. However, when the water table is high, saturated

soils will be found closer to the surface. Saturated soils cannot treat sewage effluent.

I don't have four feet of suitable soil on my property, but the SEO issued a permit for an elevated sand mound. How does this system work?

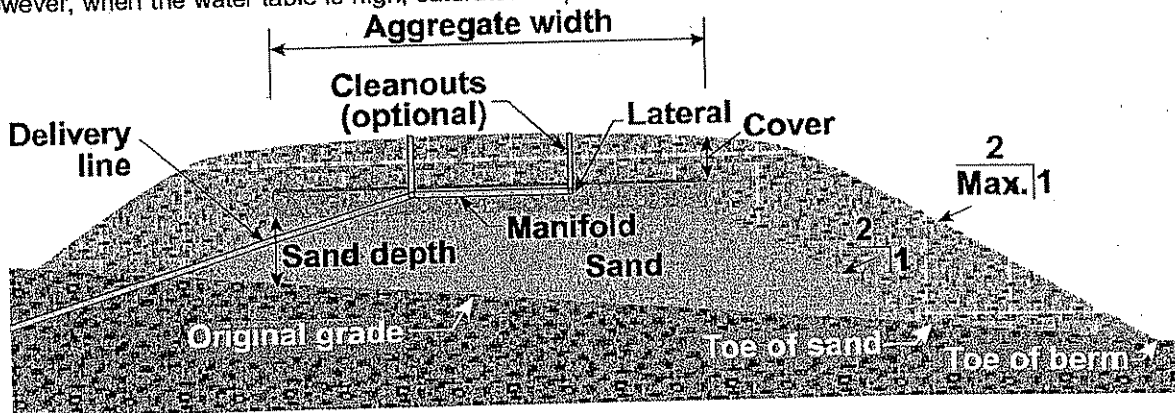
The elevated sand mound system (illustrated below) makes up for the lack of natural suitable soil by using a special blend of sandy fill material. The sandy fill material is placed on top of the natural soil. The piping and gravel are then placed on top of this fill material and a mound is formed above the original ground level. A property with as little as 20 inches of suitable natural soil may use an elevated sand mound, depending on slope. The required four feet of suitable soil in this case is made up of 20 inches of natural soil and 28 inches of sandy fill material.

I understand the need for an elevated sand mound for my lot but don't like the idea of a big mound in the middle of my yard. Can it be blended into the landscape?

Yes, if possible, the system should be located in a position that will make it easy to blend into the landscape. Fill soils may be used to blend the system into the landscape after installation, as long as care is taken not to damage the system or compact the soils around the system. Elevated sand mound systems, however, are never "cut" into a hillside.

What if I disagree with the SEO's evaluation of my soils?

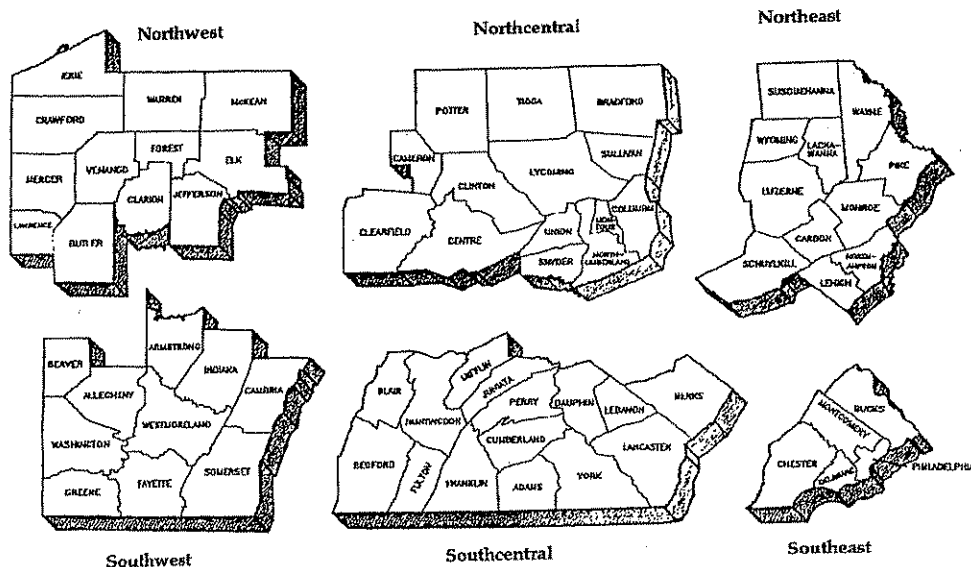
A process has been established for the appeal of decisions made by an SEO and is discussed under DEP fact sheet, "Appealing a Local Agency Decision Under Act 537" at the DEP website www.dep.state.pa.us (directLINK "wastewater"). An additional process specifically for disagreements regarding mottling is discussed under DEP fact sheet, "Bonded Disposal Systems and Soil Mottling" at the DEP website www.dep.state.pa.us (directLINK "wastewater").



Typical Elevated Sand Mound System

For more information,
call the DEP regional office in your area or contact:

Department of Environmental Protection
Bureau of Water Supply and Wastewater Management
P.O. Box 8467
Harrisburg, PA 17105-8467
(717) 783-3795



DEP REGIONAL OFFICES

Southeast Region
Suite 6010, Lee Park
555 North Lane
Conshohocken, PA 19428
Water Supply: 610-832-6060
Wastewater: 610-832-6131

Counties: Bucks, Chester, Delaware, Montgomery and Philadelphia

Northwest Region
230 Chestnut St.
Meadville, PA 16335-3481
Water Supply: 814-332-6899
Wastewater: 814-332-6942

Counties: Butler, Clarion, Crawford, Elk, Erie, Forest, Jefferson, Lawrence, McKean, Mercer, Venango and Warren

Southwest Region
400 Waterfront Drive
Pittsburgh, PA 15222-4745
Water Supply: 412-442-4217
Wastewater: 412-442-4035

Counties: Allegheny, Armstrong, Beaver, Cambria, Fayette, Greene, Indiana, Somerset, Washington and Westmoreland

Northeast Region
2 Public Square
Wilkes-Barre, PA 18711-0790
Water Supply: 570-826-2511
Wastewater: 570-826-2553

Counties: Carbon, Lackawanna, Lehigh, Luzerne, Monroe, Northampton, Pike, Schuylkill, Susquehanna, Wayne and Wyoming

Southcentral Region
909 Elmerton Ave.
Harrisburg, PA 17110
Water Supply: 717-705-4708
Wastewater: 717-705-4707

Counties: Adams, Bedford, Berks, Blair, Cumberland, Dauphin, Franklin, Fulton, Huntingdon, Juniata, Lancaster, Lebanon, Mifflin, Perry and York

Northcentral Region
208 W. Third St., Suite 101
Williamsport, PA 17701
Water Supply: 570-327-3636
Wastewater: 570-327-3670

Counties: Bradford, Cameron, Clearfield, Centre, Clinton, Columbia, Lycoming, Montour, Northumberland, Potter, Snyder, Sullivan, Tioga and Union

This fact sheet and related environmental information are available electronically via Internet. For more information, visit us through the PA PowerPort at <http://www.state.pa.us> or visit DEP directly at <http://www.dep.state.pa.us> (directLINK "Wastewater").



www.GreenWorks.tv - A web space dedicated to helping you learn how to protect and improve the environment. The site features the largest collection of environmental videos available on the Internet and is produced by the nonprofit Environmental Fund for Pennsylvania, with financial support from the Pennsylvania Department of Environmental Protection, 877-PA-GREEN.



Fact Sheet

Commonwealth of Pennsylvania • Department of Environmental Protection

An Overview of the Act 537 Sewage Facilities Program

History of the Act 537 Program

Domestic sewage and wastewater are treated and disposed of by various methods, ranging from large municipally-owned sewage treatment plants to community or individual onlot disposal systems (OLDS), also called "septic systems." Malfunctioning sewage disposal systems, regardless of type, pose a serious threat to public health and the environment. They can pollute public and private drinking water sources, often by discharging directly to the groundwater, and they can expose humans and animals to various bacteria, viruses and parasites. Repairs to these systems often can lead to financial hardships for affected municipalities or homeowners.

On Jan. 24, 1966, the Pennsylvania Sewage Facilities Act (Act 537, as amended) was enacted to correct existing sewage disposal problems and prevent future problems. To meet these objectives, the Act requires proper planning of all types of sewage facilities, permitting of individual and community OLDS, as well as uniform standards for designing OLDS.

The sewage facilities program, often referred to as simply the "Act 537 program," is largely administered by individual municipalities (known as local agencies) or groups of municipalities, including County Health Departments (known as joint local agencies). These agencies receive technical and financial assistance and oversight from the Department of Environmental Protection (DEP).

The Major Provisions of Act 537

- All municipalities must develop and implement an official sewage plan that addresses their present and future sewage disposal needs. These plans are modified as new land development projects are proposed or whenever a municipality's sewage disposal needs change. DEP reviews and approves the official plans and any subsequent revisions.
- Local agencies are required to employ both primary and alternate Sewage Enforcement Officers (SEO). After successfully completing training and being certified by a state board, an SEO works for the local agency and is responsible for implementing the daily operation of that agency's OLDS permitting program. SEOs are not DEP employees.
- Local agencies, through their SEO, approve or deny permits for construction of onlot sewage disposal systems prior to system installation.

- DEP provides grants and reimbursements (funded by annual legislative appropriations) to municipalities and local agencies for costs associated with the Act 537 planning and permitting programs.
- An Environmental Quality Board (EQB) must adopt regulations establishing standards for sewage disposal facilities. These regulations then apply throughout the Commonwealth.
- A Sewage Advisory Committee (SAC) reviews existing and proposed rules, regulations, standards and procedures and then advises the Secretary of DEP. This advisory committee is comprised of members representing many sectors of the regulated community.

The Planning Process

Municipalities are required to develop and implement comprehensive official sewage plans that: address existing sewage disposal needs or problems; account for future land development; and provide for future sewage disposal needs of the entire municipality. This document is called an "Official Plan" or sometimes a "base" plan.

Official plans contain comprehensive information, including:

- Population figures and projections;
- Drinking water supplies;
- Waterways, soil types and geologic features;
- Sanitary survey results;
- Location, type and operational status of existing sewage facilities;
- Local zoning and land use designations;
- Estimates of the future sewage disposal needs;
- Identification of potential problem-solving alternatives;
- Cost estimates necessary to carry out those alternatives; and
- The selection of appropriate problem solving alternatives.

Municipalities are required to revise (unless they are exempt from revising) the "Official Plan" if a new land development project is proposed or if unanticipated conditions or circumstances arise that make the base plan inadequate. There are two basic types of plan



Fact Sheet

Commonwealth of Pennsylvania • Department of Environmental Protection

ACT 537 #4

PROCESS FOR RESOLVING COMPLAINTS ABOUT MALFUNCTIONING ONLOT SEWAGE DISPOSAL SYSTEMS

Under the Pennsylvania Sewage Facilities Act (Act 537 of 1966, as amended), local governments have substantial powers and primary responsibilities for administering and enforcing major portions of the Act 537 sewage facilities program. Among the many responsibilities:

- A municipal government (such as a township board of supervisors, borough council or city council) must develop and implement an approved official sewage facilities plan that addresses existing sewage disposal needs or problems, accounts for future land development and provides for future sewage disposal needs of the entire municipality. The official plan must be revised when new subdivisions are proposed or when the plan becomes outdated for various reasons.
- A local agency must handle the permitting program for the installation or repair of individual and community onlot sewage disposal systems with a flow of 10,000 gallons or less each day. ***The local agency, through its Sewage Enforcement Officer (SEO), must investigate complaints about malfunctioning onlot systems and, if necessary, take enforcement actions to ensure proper repairs.***

This fact sheet provides information on the roles and responsibilities of local agencies and their SEOs in handling and resolving complaints about malfunctioning onlot sewage disposal systems. (Onlot systems are more commonly referred to as septic systems.)

What is a Local Agency?

A local government that is able to administer its onlot sewage disposal permit program is called a local agency. To qualify as a local agency, the local government must employ a certified Sewage Enforcement Officer (SEO) to perform activities including: 1) issue, deny or revoke septic system permits in accordance with state regulations and standards; 2) inspect newly-installed systems to ensure proper installation; and 3) investigate and resolve septic system malfunction problems. The certified SEO is employed by and works for the local agency, not the PA Department of Environmental Protection (DEP).

Qualifying local agencies can be one of the following:

- A single municipality;
- A combination of municipalities acting jointly; or
- A county or joint-county Department of Health.

Local agencies, usually through their SEOs, are by law responsible for investigating complaints of malfunctioning septic systems and ensuring that the malfunctions are properly repaired. Where system repairs are not made voluntarily, local agencies must take enforcement actions against responsible property owners. (The local agency also is responsible for taking action against property owners with illegal septic systems that were installed without prior permit approval.)

Where and how should septic system malfunctions be reported?

Complaints about malfunctioning septic systems should be reported directly to the local agency, SEO or the local government officials (township, borough or city officials) with jurisdiction in the municipality where the malfunction exists. Depending on each municipality's rules and procedures, complaints may have to be made in writing. Complaints received by DEP's service representatives will be directed to the appropriate local agency and/or SEO.

What should happen once a complaint is received?

When a certified SEO or local official receives a complaint, the local government should take certain steps, including:

- Local official may issue a letter notifying the property owner of the alleged malfunction and allowing for voluntary compliance if a malfunction exists. Some local agencies bypass this step and first require the certified SEO to conduct an initial site investigation to document the conditions. If there is a malfunction, the SEO will try to determine the causes of the malfunction and to decide the extent of the repair needed to correct the problem. Corrective action may be as simple as requiring a septic tank to be cleaned or as complex as installing a new system at a new location.

- Local agency issues a Notice of Violation to the responsible property owner requiring the submission of a sewage permit application for the proper system repair. The local agency can often persuade the responsible property owner to take appropriate corrective action. If the responsible property owner fails to voluntarily take proper corrective action, the local agency and SEO should take appropriate legal actions, generally with the assistance of the municipal solicitor.
- SEO issues the responsible property owner a permit to repair or replace the malfunctioning system after any necessary site testing has been done and an acceptable system design has been submitted.
- Responsible property owner begins the repair/replacement activities as approved by the permit. Heavy rains or frozen soils could delay the repair/replacement activities until conditions improve.

What should the person making a complaint expect from the local agency and SEO?

The local agency or SEO should acknowledge a complaint and investigate serious complaints in a timely fashion. Normally, the SEO should contact the owner of the alleged malfunction within one week of receiving the complaint. An actual site visit, if necessary, should be scheduled promptly.

The person making the complaint should not expect a final resolution of a serious malfunction to occur "overnight." The various steps to resolving a serious malfunction take time; investigating the site, testing soils, processing the sewage permit application, designing the repair system and conducting the repair. Also, the timing of the field activities are dependent on the weather.

If legal action is required by the local agency to get the responsible property owner to resolve the serious malfunction, additional delays can be expected. Complainants need to give their local officials time to do the job.

What happens if the malfunction problem is not resolved?

If the responsible property owner fails to repair the malfunction, the person making the complaint should go back to the local agency and renew the complaint. That person also may wish to seek private legal assistance to help resolve the matter.

What are DEP's roles and responsibilities for resolving malfunction problems?

DEP's role in the onlot sewage disposal program is one of oversight. Under Act 537 and its regulations, the responsibility for investigating and resolving malfunction problems was explicitly given to local agencies, not to DEP. For that reason, DEP does not ordinarily get

directly involved in matters that are strictly the responsibility of local agencies. DEP's responsibilities under the onlot sewage program include:

- Training and providing technical assistance to SEOs and local agencies to ensure that they can effectively perform their activities;
- Routinely evaluating the performance of each certified SEO and each local agency. Appropriate action is taken where an evaluation reveals inadequate or inappropriate municipal or SEO response to complaints about system malfunctions or other violations of Act 537 or the rules and regulations; and
- Providing grants and reimbursements to local agencies and SEOs for permitting and enforcement activities which are consistent with Act 537 and DEP's rules and regulations.

While DEP will not ordinarily intervene in individual complaints, it is DEP's responsibility to take action where a pattern of unresponsiveness on the part of an SEO or municipality is observed. DEP action could include:

- The suspension or revocation of an SEO's certification;
- The withholding or reduction of a local agency's reimbursement for the administration of the program; and/or
- The issuance of a formal order to compel a local agency to adequately administer the program.

In addition to providing training and technical guidance to handle individual septic system problems, DEP works cooperatively with municipal governments to correct areas with multiple malfunctions. During the process of updating an official municipal plan, a schedule is developed either to provide comprehensive municipal repair and management of area-wide problems, or to construct community sewage collection and treatment systems to replace the failed septic systems.

Are there indications of a septic system in trouble?

Yes. There are many indicators of a malfunctioning septic system. Some indicators can be very obvious to the property owner while others may require more careful observation. The indicators may include:

- Toilet runs sluggishly;
- Sewer odors in the house and/or drinking water;
- Sponginess around septic tank, distribution box, dosing tank or absorption area;
- Surfacing raw sewage;

- Dosing pump runs constantly or not at all;
- Dosing tank alarm light is on; and/or
- Backup of sewage into laundry tubs or other fixtures.

What can property owners do to prevent septic system malfunctions?

Properly designed and installed sewage disposal systems function better and longer with proper maintenance. Most of the following recommended maintenance activities are simple and inexpensive for the property owner to implement:

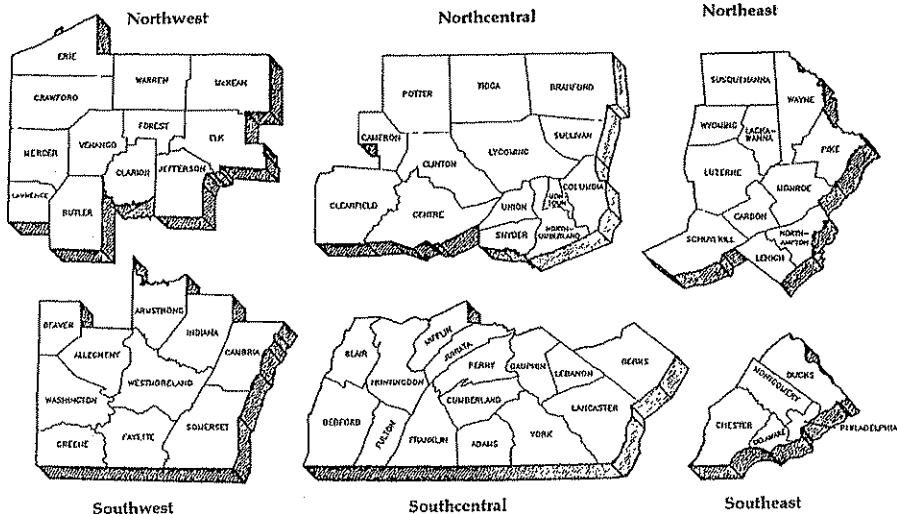
- Conserve water and reduce wastewater flow into the septic tank;
- Have the septic tank pumped at least every three-five years, depending on tank size and household size;

- Avoid putting harsh chemicals in the septic system;
- Do not use the toilet to dispose of bulky, slowly decomposing wastes;
- Divert run-off from downspouts, sump pumps, and paved surfaces away from septic tank and sewage disposal area;
- Keep heavy vehicles, equipment and livestock away from the septic system; and
- Do not plant trees and shrubs over or close to the septic system.

For more information, please visit the PA PowerPort at www.state.pa.us, Keyword: "DEP Wastewater."

For more information,
call the DEP regional office in your area or contact:

Department of Environmental Protection
Bureau of Water Supply and Wastewater Management
P.O. Box 8467
Harrisburg, PA 17105-8467
(717) 783-3795



DEP REGIONAL OFFICES

Southeast Region
Suite 6010, Lee Park
555 North Lane
Conshohocken, PA 19428
Water Supply: 610-832-6059
Wastewater: 610-832-6131

Counties: Bucks, Chester, Delaware, Montgomery and Philadelphia

Northwest Region
230 Chestnut St.
Meadville, PA 16335-3481
Water Supply: 814-332-6899
Wastewater: 814-332-6942

Counties: Butler, Clarion, Crawford, Elk, Erie, Forest, Jefferson, Lawrence, McKean, Mercer, Venango and Warren

Southwest Region
400 Waterfront Drive
Pittsburgh, PA 15222-4745
Water Supply: 412-442-4217
Wastewater: 412-442-4028

Counties: Allegheny, Armstrong, Beaver, Cambria, Fayette, Greene, Indiana, Somerset, Washington and Westmoreland

Northeast Region
2 Public Square
Wilkes-Barre, PA 18711-0790
Water Supply: 570-826-2511
Wastewater: 570-826-2511

Counties: Carbon, Lackawanna, Lehigh, Luzerne, Monroe, Northampton, Pike, Schuylkill, Susquehanna, Wayne and Wyoming

Southcentral Region
909 Elmerton Ave.
Harrisburg, PA 17110
Water Supply: 717-705-4708
Wastewater: 717-705-4707

Counties: Adams, Bedford, Berks, Blair, Cumberland, Dauphin, Franklin, Fulton, Huntingdon, Juniata, Lancaster, Lebanon, Mifflin, Perry and York

Northcentral Region
208 W. Third St., Suite 101
Williamsport, PA 17701
Water Supply: 570-327-3675
Wastewater: 570-327-3670

Counties: Bradford, Cameron, Clearfield, Centre, Clinton, Columbia, Lycoming, Montour, Northumberland, Potter, Snyder, Sullivan, Tioga and Union



Fact Sheet

Commonwealth of Pennsylvania • Department of Environmental Protection

Understanding Holding Tanks

Over the years, the Department of Environmental Protection's (DEP) Sewage Facilities Planning staff has fielded many questions from concerned citizens, landowners, prospective homebuyers and developers about the use of holding tanks for sewage disposal. This fact sheet discusses many of the recurring concerns and questions about holding tanks.

What is a holding tank?

As defined in DEP regulations (Title 25, Pennsylvania Code, Section 73.1 available on-line at www.pacode.com), a holding tank is "a tank, whether permanent or temporary, to which sewage is conveyed by a water carrying system." Further, it is "a watertight receptacle that receives and retains sewage and is designed and constructed to facilitate ultimate disposal of sewage at another site."

Is that the same as a septic tank?

No, they are not the same. Holding tanks (Figure 1) and septic tanks (Figure 2) are very different structures. Again referring to Title 25, Pennsylvania Code, Section 73.1, a septic tank is "a treatment tank that provides for anaerobic (oxygen poor conditions) decomposition of sewage prior to its discharge to an absorption area." This treatment function is the first of two major differences between a septic tank and a holding tank. Holding tanks do not treat sewage, they merely store sewage that will be treated at another location. The second difference is that septic tanks discharge partially treated sewage (called effluent) into the soil for final treatment through an outlet. Holding tanks have no such outlet.

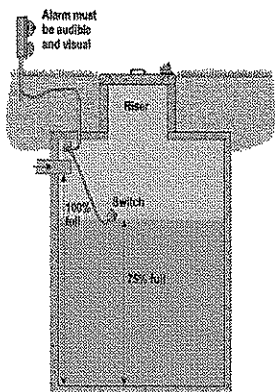


Figure 1. Holding Tank

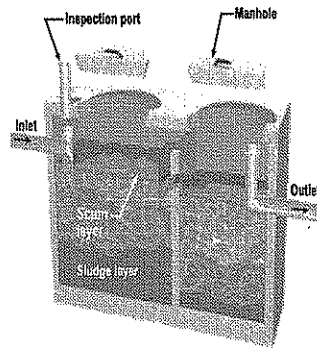


Figure 2. Septic Tank

I have also heard of cesspools. Are they similar to either holding tanks or septic tanks?

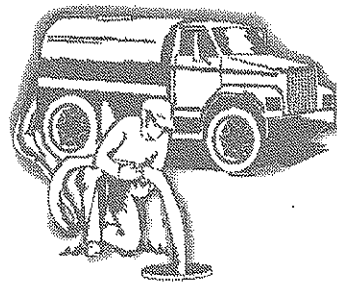
Cesspools are not similar to either septic tanks or holding tanks. A cesspool is an outdated method of sewage disposal that is not permitted in modern regulations.



Figure 3. Collapsed Cesspool

A cesspool may be described as an "igloo like" structure, built of loose (without mortar) rock or building blocks, that is buried underground. Cesspools are not watertight and allow the sewage entering them to drain into the surrounding area. Constructed from the late 19th to the mid 20th centuries, these aging facilities can become unstable and dangerous. Figure 3 depicts a collapsed cesspool that previously served a single-family residence. Unlike septic tanks, cesspools provide very little treatment to sewage before releasing it to the environment and unlike holding tanks, cesspools do not retain sewage for treatment elsewhere.

How is a holding tank cleaned?

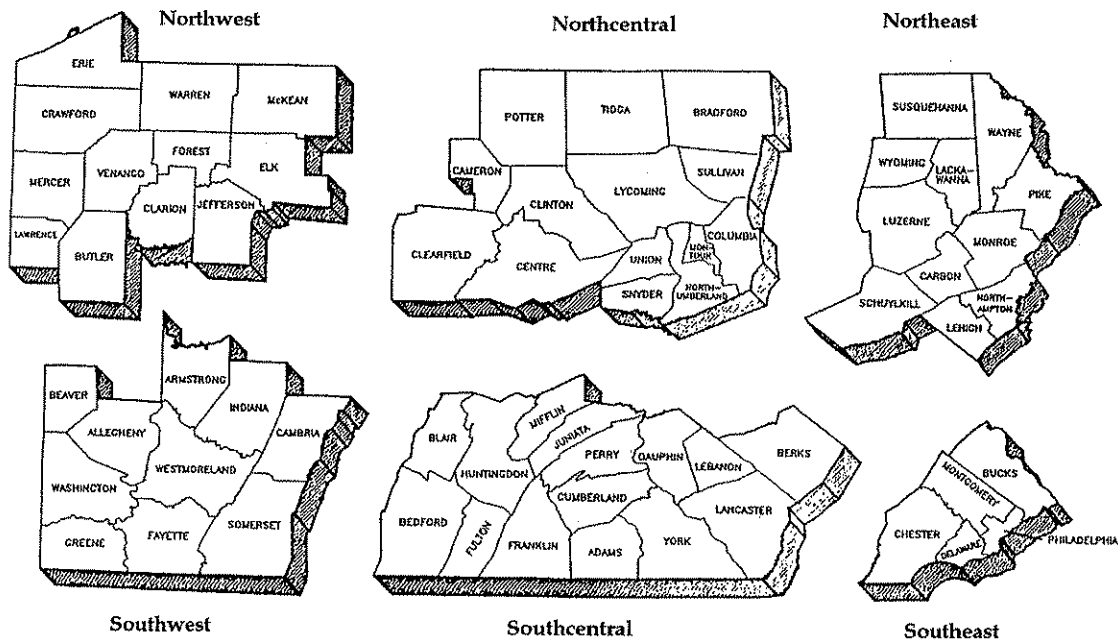


The sewage in a holding tank must be periodically removed by a pump truck and taken to another permitted location for treatment. In Pennsylvania, the cost for this service varies with the volume of the tank, the difficulty in

reaching the tank and the geographic location within the Commonwealth. An informal survey, conducted in 2001, revealed the cost of pumping an average sized tank ranged from \$120 to \$225 per service.

For more information,
call the DEP regional office in your area or contact:

Department of Environmental Protection
Bureau of Water Supply and Wastewater Management
Division of Wastewater Management
P.O. Box 8774
Harrisburg, PA 17105-8774
(717) 787-8184



DEP REGIONAL OFFICES

Southeast Region

2 E. Main St.
Norristown, PA 19401
Main Telephone: 484-250-5900
24-Hour Emergency: 484-250-5900

Counties: Bucks, Chester, Delaware, Montgomery and Philadelphia

Southwest Region

400 Waterfront Drive
Pittsburgh, PA 15222-4745
Main Telephone: 412-442-4000
24-Hour Emergency: 412-442-4000

Counties: Allegheny, Armstrong, Beaver, Cambria, Fayette, Greene, Indiana, Somerset, Washington and Westmoreland

Southcentral Region

909 Elmerton Ave.
Harrisburg, PA 17110
Main Telephone: 717-705-4700
24-Hour Emergency: 1-877-333-1940

Counties: Adams, Bedford, Berks, Blair, Cumberland, Dauphin, Franklin, Fulton, Huntingdon, Juniata, Lancaster, Lebanon, Mifflin, Perry and York

Northwest Region

230 Chestnut St.
Meadeville, PA 16335-3481
Main Telephone: 814-332-6945
24-Hour Emergency: 1-800-373-3398

Counties: Butler, Clarion, Crawford, Elk, Erie, Forest, Jefferson, Lawrence, McKean, Mercer, Venango and Warren

Northeast Region

2 Public Square
Wilkes-Barre, PA 18711-0790
Main Telephone: 570-826-2511
24-Hour Emergency: 570-826-2511

Counties: Carbon, Lackawanna, Lehigh, Luzerne, Monroe, Northampton, Pike, Schuylkill, Susquehanna, Wayne and Wyoming

Northcentral Region

208 W. Third St., Suite 101
Williamsport, PA 17701
Main Telephone: 570-327-3636
24-Hour Emergency: 570-327-3636

Counties: Bradford, Cameron, Clearfield, Centre, Clinton, Columbia, Lycoming, Montour, Northumberland, Potter, Snyder, Sullivan, Tioga and Union



Fact Sheet

Commonwealth of Pennsylvania • Department of Environmental Protection

An Overview of the Act 537 Sewage Facilities Program

History of the Act 537 Program

Domestic sewage and wastewater are treated and disposed of by various methods, ranging from large municipally-owned sewage treatment plants to community or individual onlot disposal systems (OLDS), also called "septic systems." Malfunctioning sewage disposal systems, regardless of type, pose a serious threat to public health and the environment. They can pollute public and private drinking water sources, often by discharging directly to the groundwater, and they can expose humans and animals to various bacteria, viruses and parasites. Repairs to these systems often can lead to financial hardships for affected municipalities or homeowners.

On Jan. 24, 1966, the Pennsylvania Sewage Facilities Act (Act 537, as amended) was enacted to correct existing sewage disposal problems and prevent future problems. To meet these objectives, the Act requires proper planning of all types of sewage facilities, permitting of individual and community OLDS, as well as uniform standards for designing OLDS.

The sewage facilities program, often referred to as simply the "Act 537 program," is largely administered by individual municipalities (known as local agencies) or groups of municipalities, including County Health Departments (known as joint local agencies). These agencies receive technical and financial assistance and oversight from the Department of Environmental Protection (DEP).

The Major Provisions of Act 537

- All municipalities must develop and implement an official sewage plan that addresses their present and future sewage disposal needs. These plans are modified as new land development projects are proposed or whenever a municipality's sewage disposal needs change. DEP reviews and approves the official plans and any subsequent revisions.
- Local agencies are required to employ both primary and alternate Sewage Enforcement Officers (SEO). After successfully completing training and being certified by a state board, an SEO works for the local agency and is responsible for implementing the daily operation of that agency's OLDS permitting program. SEOs are not DEP employees.
- Local agencies, through their SEO, approve or deny permits for construction of onlot sewage disposal systems prior to system installation.

- DEP provides grants and reimbursements (funded by annual legislative appropriations) to municipalities and local agencies for costs associated with the Act 537 planning and permitting programs.
- An Environmental Quality Board (EQB) must adopt regulations establishing standards for sewage disposal facilities. These regulations then apply throughout the Commonwealth.
- A Sewage Advisory Committee (SAC) reviews existing and proposed rules, regulations, standards and procedures and then advises the Secretary of DEP. This advisory committee is comprised of members representing many sectors of the regulated community.

The Planning Process

Municipalities are required to develop and implement comprehensive official sewage plans that: address existing sewage disposal needs or problems; account for future land development; and provide for future sewage disposal needs of the entire municipality. This document is called an "Official Plan" or sometimes a "base" plan.

Official plans contain comprehensive information, including:

- Population figures and projections;
- Drinking water supplies;
- Waterways, soil types and geologic features;
- Sanitary survey results;
- Location, type and operational status of existing sewage facilities;
- Local zoning and land use designations;
- Estimates of the future sewage disposal needs;
- Identification of potential problem-solving alternatives;
- Cost estimates necessary to carry out those alternatives; and
- The selection of appropriate problem solving alternatives.

Municipalities are required to revise (unless they are exempt from revising) the "Official Plan" if a new land development project is proposed or if unanticipated conditions or circumstances arise that make the base plan inadequate. There are two basic types of plan

changes. "Plan revisions" resulting from new land development are completed using "planning modules" that are specific to individual projects. An "update revision" is used by municipalities to make broad changes to their Official Plan.

The OLDS Permitting Program

Act 537 requires local or joint-local agencies, through their SEO, to manage the permitting program for individual onlot disposal systems and community onlot systems with design flows of 10,000 gallons-per-day or less. An individual OLDS is a system that serves a single lot, while a community OLDS serves two or more lots.

SEOs are trained to DEP standards and certified by the State Board for Certification of Sewage Enforcement Officers. SEOs are employees of local agencies and not of DEP. The SEO is responsible for conducting soil profile testing, percolation testing, OLDS design review and approving or denying OLDS permit applications. The SEO and the individual installing an OLDS must follow the standards established in Chapter 73 of DEP's regulations.

DEP's primary role in the onlot permit program is to provide oversight to local agencies and SEOs. Wherever possible, DEP will assist local agencies in carrying out their permitting responsibilities. However, other than to promote technical information, DEP does not interfere in onlot system permitting disputes between local agencies and homeowners, other than to provide technical information.

Financial Assistance Programs

There are two major financial assistance programs administered by DEP to assist municipalities and local agencies when carrying out their Act 537 program

responsibilities. DEP provides a "reimbursement type" grant to offset municipal costs associated with developing or revising an Official Plan.

DEP also reimburses municipalities, local agencies and joint-local agencies on an annual basis for costs incurred during the year while administering the onlot-permitting program and for enforcing the Act 537 program.

In a third non-municipal program, administered by the Pennsylvania Infrastructure Investment Authority (PENNVEST), low interest loans are also available to qualified private landowners to assist in the repair of malfunctioning onlot sewage disposal systems. PENNVEST information is available online at www.pennvest.state.pa.us.

Act 537 Sewage Facilities Program Regulations

The DEP regulations that address the administration of the Act 537 planning process are found in Title 25, Pennsylvania Code, Chapter 71. Rules for the OLDS permitting process are found in Chapter 72 and technical standards addressing the design of OLDS in Pennsylvania are found in Chapter 73. All three chapters are available online at www.pacode.com.

Additional Information

For more information, visit DEP's website at www.dep.state.pa.us, Keyword: "DEP Wastewater" or by contacting the Bureau of Water Supply and Wastewater Management, Division of Wastewater Management, 11th Floor, Rachel Carson State Office Building, P.O. Box 8774, Harrisburg PA 17105-8774, 717-787-8184 or by contacting your local DEP office.



Fact Sheet

Commonwealth of Pennsylvania • Department of Environmental Protection

ACT 537 #4

PROCESS FOR RESOLVING COMPLAINTS ABOUT MALFUNCTIONING ONLOT SEWAGE DISPOSAL SYSTEMS

Under the Pennsylvania Sewage Facilities Act (Act 537 of 1966, as amended), local governments have substantial powers and primary responsibilities for administering and enforcing major portions of the Act 537 sewage facilities program. Among the many responsibilities:

- A municipal government (such as a township board of supervisors, borough council or city council) must develop and implement an approved official sewage facilities plan that addresses existing sewage disposal needs or problems, accounts for future land development and provides for future sewage disposal needs of the entire municipality. The official plan must be revised when new subdivisions are proposed or when the plan becomes outdated for various reasons.
- A local agency must handle the permitting program for the installation or repair of individual and community onlot sewage disposal systems with a flow of 10,000 gallons or less each day. ***The local agency, through its Sewage Enforcement Officer (SEO), must investigate complaints about malfunctioning onlot systems and, if necessary, take enforcement actions to ensure proper repairs.***

This fact sheet provides information on the roles and responsibilities of local agencies and their SEOs in handling and resolving complaints about malfunctioning onlot sewage disposal systems. (Onlot systems are more commonly referred to as septic systems.)

What is a Local Agency?

A local government that is able to administer its onlot sewage disposal permit program is called a local agency. To qualify as a local agency, the local government must employ a certified Sewage Enforcement Officer (SEO) to perform activities including: 1) issue, deny or revoke septic system permits in accordance with state regulations and standards; 2) inspect newly-installed systems to ensure proper installation; and 3) investigate and resolve septic system malfunction problems. The certified SEO is employed by and works for the local agency, not the PA Department of Environmental Protection (DEP).

Qualifying local agencies can be one of the following:

- A single municipality;
- A combination of municipalities acting jointly; or
- A county or joint-county Department of Health.

Local agencies, usually through their SEOs, are by law responsible for investigating complaints of malfunctioning septic systems and ensuring that the malfunctions are properly repaired. Where system repairs are not made voluntarily, local agencies must take enforcement actions against responsible property owners. (The local agency also is responsible for taking action against property owners with illegal septic systems that were installed without prior permit approval.)

Where and how should septic system malfunctions be reported?

Complaints about malfunctioning septic systems should be reported directly to the local agency, SEO or the local government officials (township, borough or city officials) with jurisdiction in the municipality where the malfunction exists. Depending on each municipality's rules and procedures, complaints may have to be made in writing. Complaints received by DEP's service representatives will be directed to the appropriate local agency and/or SEO.

What should happen once a complaint is received?

When a certified SEO or local official receives a complaint, the local government should take certain steps, including:

- Local official may issue a letter notifying the property owner of the alleged malfunction and allowing for voluntary compliance if a malfunction exists. Some local agencies bypass this step and first require the certified SEO to conduct an initial site investigation to document the conditions. If there is a malfunction, the SEO will try to determine the causes of the malfunction and to decide the extent of the repair needed to correct the problem. Corrective action may be as simple as requiring a septic tank to be cleaned or as complex as installing a new system at a new location.

- Local agency issues a Notice of Violation to the responsible property owner requiring the submission of a sewage permit application for the proper system repair. The local agency can often persuade the responsible property owner to take appropriate corrective action. If the responsible property owner fails to voluntarily take proper corrective action, the local agency and SEO should take appropriate legal actions, generally with the assistance of the municipal solicitor.
- SEO issues the responsible property owner a permit to repair or replace the malfunctioning system after any necessary site testing has been done and an acceptable system design has been submitted.
- Responsible property owner begins the repair/replacement activities as approved by the permit. Heavy rains or frozen soils could delay the repair/replacement activities until conditions improve.

What should the person making a complaint expect from the local agency and SEO?

The local agency or SEO should acknowledge a complaint and investigate serious complaints in a timely fashion. Normally, the SEO should contact the owner of the alleged malfunction within one week of receiving the complaint. An actual site visit, if necessary, should be scheduled promptly.

The person making the complaint should not expect a final resolution of a serious malfunction to occur "overnight." The various steps to resolving a serious malfunction take time; investigating the site, testing soils, processing the sewage permit application, designing the repair system and conducting the repair. Also, the timing of the field activities are dependent on the weather.

If legal action is required by the local agency to get the responsible property owner to resolve the serious malfunction, additional delays can be expected. Complainants need to give their local officials time to do the job.

What happens if the malfunction problem is not resolved?

If the responsible property owner fails to repair the malfunction, the person making the complaint should go back to the local agency and renew the complaint. That person also may wish to seek private legal assistance to help resolve the matter.

What are DEP's roles and responsibilities for resolving malfunction problems?

DEP's role in the onlot sewage disposal program is one of oversight. Under Act 537 and its regulations, the responsibility for investigating and resolving malfunction problems was explicitly given to local agencies, not to DEP. For that reason, DEP does not ordinarily get

directly involved in matters that are strictly the responsibility of local agencies. DEP's responsibilities under the onlot sewage program include:

- Training and providing technical assistance to SEOs and local agencies to ensure that they can effectively perform their activities;
- Routinely evaluating the performance of each certified SEO and each local agency. Appropriate action is taken where an evaluation reveals inadequate or inappropriate municipal or SEO response to complaints about system malfunctions or other violations of Act 537 or the rules and regulations; and
- Providing grants and reimbursements to local agencies and SEOs for permitting and enforcement activities which are consistent with Act 537 and DEP's rules and regulations.

While DEP will not ordinarily intervene in individual complaints, it is DEP's responsibility to take action where a pattern of unresponsiveness on the part of an SEO or municipality is observed. DEP action could include:

- The suspension or revocation of an SEO's certification;
- The withholding or reduction of a local agency's reimbursement for the administration of the program; and/or
- The issuance of a formal order to compel a local agency to adequately administer the program.

In addition to providing training and technical guidance to handle individual septic system problems, DEP works cooperatively with municipal governments to correct areas with multiple malfunctions. During the process of updating an official municipal plan, a schedule is developed either to provide comprehensive municipal repair and management of area-wide problems, or to construct community sewage collection and treatment systems to replace the failed septic systems.

Are there indications of a septic system in trouble?

Yes. There are many indicators of a malfunctioning septic system. Some indicators can be very obvious to the property owner while others may require more careful observation. The indicators may include:

- Toilet runs sluggishly;
- Sewer odors in the house and/or drinking water;
- Sponginess around septic tank, distribution box, dosing tank or absorption area;
- Surfacing raw sewage;

- Dosing pump runs constantly or not at all;
- Dosing tank alarm light is on; and/or
- Backup of sewage into laundry tubs or other fixtures.

What can property owners do to prevent septic system malfunctions?

Properly designed and installed sewage disposal systems function better and longer with proper maintenance. Most of the following recommended maintenance activities are simple and inexpensive for the property owner to implement:

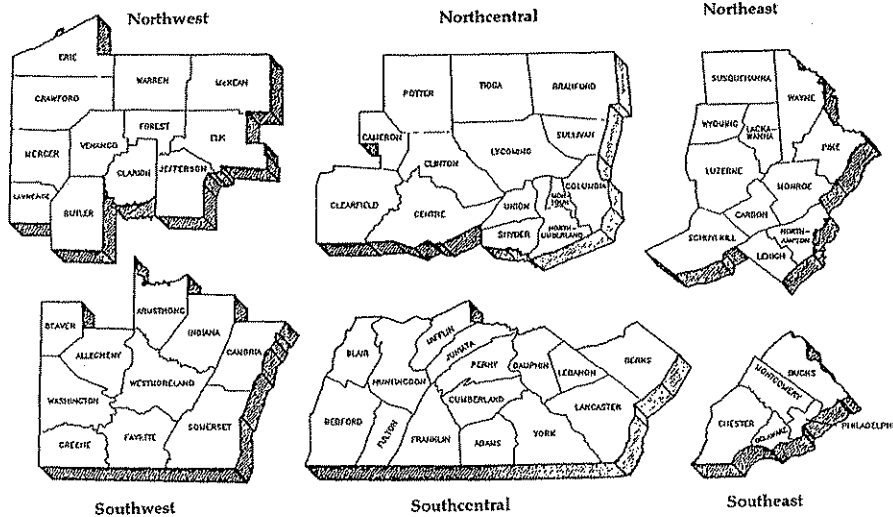
- Conserve water and reduce wastewater flow into the septic tank;
- Have the septic tank pumped at least every three-five years, depending on tank size and household size;

- Avoid putting harsh chemicals in the septic system;
- Do not use the toilet to dispose of bulky, slowly decomposing wastes;
- Divert run-off from downspouts, sump pumps, and paved surfaces away from septic tank and sewage disposal area;
- Keep heavy vehicles, equipment and livestock away from the septic system; and
- Do not plant trees and shrubs over or close to the septic system.

For more information, please visit the PA PowerPort at www.state.pa.us, Keyword: "DEP Wastewater."

For more information,
call the DEP regional office in your area or contact:

Department of Environmental Protection
Bureau of Water Supply and Wastewater Management
P.O. Box 8467
Harrisburg, PA 17105-8467
(717) 783-3795



DEP REGIONAL OFFICES

Southeast Region
Suite 6010, Lee Park
555 North Lane
Conshohocken, PA 19428
Water Supply: 610-832-6059
Wastewater: 610-832-6131

Counties: Bucks, Chester, Delaware, Montgomery and Philadelphia

Northwest Region
230 Chestnut St.
Meadville, PA 16335-3481
Water Supply: 814-332-6899
Wastewater: 814-332-6942

Counties: Butler, Clarion, Crawford, Elk, Erie, Forest, Jefferson, Lawrence, McKean, Mercer, Venango and Warren

Southwest Region
400 Waterfront Drive
Pittsburgh, PA 15222-4745
Water Supply: 412-442-4217
Wastewater: 412-442-4028

Counties: Allegheny, Armstrong, Beaver, Cambria, Fayette, Greene, Indiana, Somerset, Washington and Westmoreland

Northeast Region
2 Public Square
Wilkes-Barre, PA 18711-0790
Water Supply: 570-826-2511
Wastewater: 570-826-2511

Counties: Carbon, Lackawanna, Lehigh, Luzerne, Monroe, Northampton, Pike, Schuylkill, Susquehanna, Wayne and Wyoming

Southcentral Region
909 Elmerton Ave.
Harrisburg, PA 17110
Water Supply: 717-705-4708
Wastewater: 717-705-4707

Counties: Adams, Bedford, Berks, Blair, Cumberland, Dauphin, Franklin, Fulton, Huntingdon, Juniata, Lancaster, Lebanon, Mifflin, Perry and York

Northcentral Region
208 W. Third St., Suite 101
Williamsport, PA 17701
Water Supply: 570-327-3675
Wastewater: 570-327-3670

Counties: Bradford, Cameron, Clearfield, Centre, Clinton, Columbia, Lycoming, Montour, Northumberland, Potter, Snyder, Sullivan, Tioga and Union