London Grove Township On-lot Sewage Management Program
Public Education Series #6:
Guidance on Addressing System Malfunctions

Contrary to popular belief, many on-lot sewage system malfunctions can be prevented. There are a number of maintenance activities which will assist in providing the longest service life and proper function of any on-lot sewage system (previous articles in this series have been devoted to this subject, and should be referred to for more detailed information). Two of the most basic and effective preventative maintenance activities are regular treatment tank pumping and water conversation. Tank pumping removes accumulated solids and allows the natural treatment processes to work more effectively, which also helps prevent problems with other parts of the sewage system, most notably the drainfield. Water conservation is also important as it limits unnecessary loading on a system - even the best soils have a finite ability to absorb wastewater.

However, and despite a homeowner's best efforts, there may still arise various situations where an onlot system is not functioning satisfactorily. There can be a myriad of reasons for a sewage system problem, and consultation with a qualified contractor and/or the Chester County Health Department (CCHD) will be needed in most cases.

Two general principles are important to keep in mind when addressing any malfunction:

1. A problem involving sewage ponding on the surface of the ground is a serious environmental health hazard, as well as an illegal condition. Anytime a malfunction like this occurs the sewage system should be pumped out by a CCHD license sewage hauler and evaluated by a qualified contractor as soon as possible to protect the health of your family and your neighbors.

2. Problems associated with the soil absorption area (aka drainfield) are typically the most difficult and expensive to correct, so try to be sure that simpler and less expensive things like a clogged or broken pipe, plumbing problem, tank problem, or unequal distribution from a "d-box" are not causing the malfunction.

Steps to help guide a homeowner through the process of resolving a malfunction in more detail are presented below. Please note that these steps are just suggestions, and the method of addressing any particular problem will likely vary based upon the nature of the problem, homeowner knowledge of the sewage system, and timely consultation with a qualified contractor.

Step 1 – Identify the Problem

Most sewage system malfunctions can be described by one or more of several general symptoms. These symptoms, and some possible causes for each, are as follows:

Slow Drains or Wastewater Back-Up

- Plumbing problem inside house
- Clogged or crushed pipe in sewage system
- Clogged inlet baffle in treatment tank
- Treatment tank clogged with solids/scum build-up
- System hydraulically saturated

Odors

- Problem with house plumbing vent
- Tank or tank lid not structurally sound
- Broken piping
- System hydraulically saturated

Lush Green Grass Over Part of System

- Broken piping
- Tank leak or overflow
- Drainfield saturated

Wastewater Surfacing and/or Wet Spongy Area

- Broken piping
- Tank leak or overflow
- Drainfield saturated

Step 2 – Check Your Maintenance Records and Pump if Needed

If your sewage system has not been pumped regularly and recently, a simple call to a CCHD licensed sewage pumper to have your tank pumped out could help define the problem. When pumping a tank, most qualified contractors can easily check for poor flow into the tank (as may be caused by a clogged or damaged pipe or inlet baffle), excessive solids buildup which could be an indicator of possible drainfield problems, or even backflow into the tank in some extreme cases of drainfield saturation. Even if tank pumping and associated system checks fail to indicate the cause of a problem, in many cases pumping abates the immediate emergency by providing an empty tank as a storage reservoir for a few days until more investigation can be completed.

In the absence of needed tank pumping and associated system checks, a homeowner can proceed to step 3 for more troubleshooting.

Step 3 – Locate the Problem

To determine what part of your sewage system may be causing the problem, it's often helpful to first confirm where the tank and drainfield are located on your property. In

many cases, the permit that was issued by the CCHD for your sewage system can tell you where all the components are on your property, as well as the size and construction of each component. If you do not have this information in your records, permit copies for most newer systems (built in the last 20-30 years) can often be obtained directly from the CCHD for a fee. If no permit data is available for your property, you may need to contact a qualified sewage system contractor to help locate your sewage system components.

Once the location of your system components is known, you may be able to narrow down the possible causes of the problem. For example, if you have sewage ponding or surfacing, or an area of lush green grass, over the drainfield or tank you will know that one of these components could be the problem. If sewage is surfacing between the tank and house, or between the tank and drainfield, you could have a broken pipe or damaged distribution box.

Step 4 – Evaluate Recent Changes or Events

Have you recently added a sump pump, diverted a roof drain, or changed the surface water run-off on your yard in any way? These things could lead to a saturated drainfield if surface water has been allowed to get into the treatment tank or flow over the drainfield area. Any changes like this that could add to the hydraulic load on your sewage system should be corrected.

Have you recently moved into a house that previously had a smaller family, or added to the number of people living in your home? If so, the additional water usage could lead to failure of an older or poorly maintained sewage system. Your sewage system may also have not been designed to handle a particularly large family – a check of CCHD permit data can tell you the number of bedrooms (roughly equal to number of people) that your system was designed to accommodate. If your sewage system is undersized, you may want to discuss procedures for permitting a larger sewage system with the CCHD. Water conservation, fixing leaky fixtures, and installing low flow fixtures (always wise on-lot sewage system practices) may be crucial in dealing with an undersized system.

Have you had any work done recently that involved heavy equipment on your yard, or allowed anyone to drive a vehicle across your yard? Vehicles and heavy construction equipment can crack tanks, crush pipes, and damage a drainfield in some cases. Addressing these problems will almost always require the input of a qualified contractor and the CCHD.

Step 5 – Solve the Problem

Based upon the investigations conducted in the steps above, you should be able to identify or at least narrow down the cause of the malfunction. In many cases the experience of a qualified contractor may be needed to determine the precise cause, but in these cases the information a homeowner has gathered by considering the steps above could be vital to securing a timely diagnosis.

If you haven't already done so, always consult with the CCHD prior to repairing or replacing any part of your sewage system. If your tank or drainfield is the cause of the malfunction and needs to be replaced, a permit from CCHD is always required. Simpler repairs may or may not require a permit – always verify permit requirements directly with the CCHD, or make sure that your contractor has done this, before beginning any type of repair work.

In the case of a drainfield replacement, a permit will usually involve CCHD personnel evaluating soils on your property to see if they are suitable for a new drainfield. This evaluation typically consists of back-hoe excavations and detailed percolation testing requirements, usually requiring the skills and equipment of a qualified contractor.

As previously noted, a drainfield replacement can be very costly, and there may also be cases where a property doesn't have enough suitable area to install a new drainfield. Depending upon the severity of the problem, increased pumping in conjunction with water conservation may be a feasible solution in these cases.

For homeowners who find themselves with no feasible repair to a failing on-lot sewage system, frequent pumping and extreme water conservation may be the only solution. Homeowners in this condition may have to consider the installation of sewage holding tanks, which do not drain to a drainfield or absorption area but are instead designed to retain all sewage until it is pumped out. Holding tanks could provide longer intervals between pumping by providing larger storage capacity, mitigating costs and inconvenience in the long run, but this is generally the option of last resort in solving a sewage system malfunction.

Step 6 – Maintain Your Sewage System

After resolving a malfunction, and possibly incurring significant costs to do so, keep your sewage system properly maintained so that the next malfunction can be avoided!

For more information, please contact the following:

Chester County Health Department
Government Services Center
601 Westtown Road, Suite 288
West Chester, PA 19380-0990
610-344-6526
http://dsf.chesco.org/health

Pa. Dept. of Environmental Protection
Southeast Regional Office
2 East Main Street
Norristown, PA 19401
484-250-5970
http://www.depweb.state.pa.us/watersupply