



Improving Septic Systems

Is your well protected from your septic system?

One of the easiest ways to protect well water from pollution is to check your septic system. Septic systems can pollute wells when they are placed too close to the well, are not properly maintained, or have not been properly installed. The major contaminants from septic systems that enter wells are disease-causing germs. These invisible germs such as bacteria and viruses can cause many human diseases. Another potential contaminant that can come from septic systems is nitrogen in the form of nitrate-nitrogen. If the nitrate level of your well water is too high, the water can be hazardous to infants in their first six months of life, and other human health problems can arise.

How can we help?

We have prepared this publication to help you focus on potential problems with your drinking water that may be caused by an improperly placed, constructed, or maintained septic system. Read the publication before you begin answering the questions in this publication. Gather any records you have about your septic system: the type of system you have, the location of the septic tank and the drainfield, and the location and type of well on your property. If you do not have records, contact your local health department for a copy of your septic system permit and soil evaluation sheet. Walk around the area near your septic system and look at it closely. Also look at the area around your well for depressions, odors, and greener vegetation.

Each of the following sections deals with different topics. Next to each topic is a question for you to answer. Your answers will help you to see where you have potential problems.

- If you answer a question either a or b, you have few problems with your septic system.
- If you answer a question either c or d, there may be potential problems with the condition of your septic system.
- If you answer a question either c or d, you will want to consider making changes to your septic system in order to protect your drinking water.

If you would like further help in assessing the condition of your septic system, please visit your nearest Cooperative Extension Service Center and talk with your Extension agent and/or your local county health department.

Distributed in furtherance of the Acts of Congress of May 8 and June 30, 1914. Employment and program opportunities are offered to all people regardless of race, color, national origin, sex, age, or disability. North Carolina State University, North Carolina A&T State University, U.S. Department of Agriculture, and local governments cooperating.



*What is the North Carolina Home*A*Syst Program?*

The North Carolina Home*A*Syst program has a series of publications that can help you to be a good environmental steward and also protect the health and well-being of your family. This publication leads you through an evaluation of your home and property to determine the pollution and health risks of your water supply protection practices. If there is a problem or a potential problem, the Home*A*Syst publications have information about how to solve the problems. The publications also list the North Carolina state and county agencies responsible for helping you solve your particular problem.

The goal of the North Carolina Home*A*Syst program is to help protect your families' and your health and the environment of North Carolina.

How safe is your drinking water?

If you drink water, it comes from a well or spring (groundwater sources) or a river or lake (surface water sources). Drinking water in North Carolina is generally safe, but it can become polluted if we are not careful. Many of the things we do at home can pollute our water and the environment. Poorly maintained or designed septic and animal waste systems can pollute surface and groundwater. Pesticides, fertilizers, fuels, and cleaning products can contaminate our water when they are not stored and handled properly.

It is nearly impossible to get pollutants out of water once they get there. Expensive treatments or new wells would be required to get safe drinking water again. Clearly, it is much more effective to keep pollutants out of water than to try to clean it up afterward.

People who have their own wells or springs for drinking water need to be especially aware of pollution sources because their water is not tested for contaminants as is city water. This is called wellhead protection and involves careful attention to the activities near your well to be sure the water remains safe. However, everyone is responsible for protecting drinking water supplies, whether it is their own or their neighbors'.

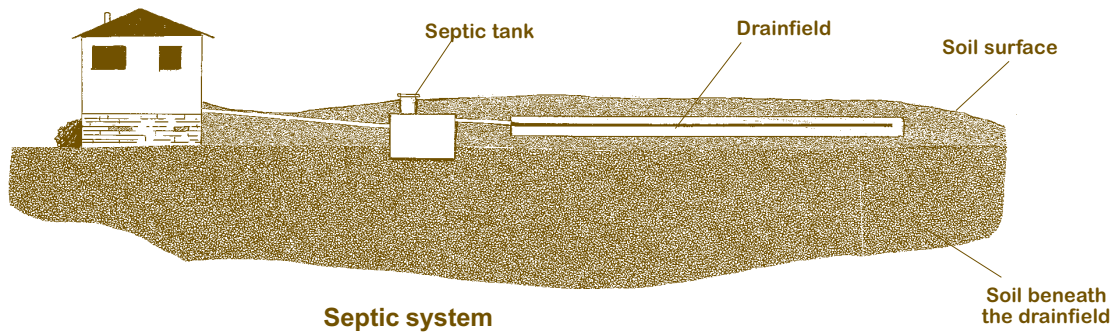
What is a septic system?

A septic system is an efficient, inexpensive, convenient, and safe method for treating and disposing of household wastewater if the system is properly installed and maintained. A septic system consists of three main parts:

1. The **septic tank** collects, stores, and treats the liquid solid that comes from the house.
2. The **drainfield** is made from pipe and gravel that are installed as trenches in the soil. The drainfield delivers wastewater to the soil.
3. The **soil beneath the drainfield** purifies the wastewater before it flows to the underlying groundwater.

North Carolina Home*A*Syst Publications

- *Protecting Water Supply, #1*
- *Improving Fuel Storage, #2*
- *Improving Storage and Handling of Hazardous Waste, #3*
- *Improving Septic Systems, #4*
- *Improving Lawn Care and Gardening, #5*
- *Stormwater Management for Homeowners, #6*
- *Indoor Air Quality: Reducing Health Risks and Improving the Air You Breathe, #7*
- *Lead In and Around the Home: Identifying and Managing Its Sources, #8*



Wastewater flows from the house into the septic tank. The solids sink to the bottom of the tank, the grease floats to the top, and the liquid portion of the wastewater flows out into the drainfield. The drainfield distributes the wastewater and allows it to slowly move into the soil. As it moves through the soil, the wastewater is purified by organisms that live in the soil.

State law requires that soils be evaluated by the local health department and that an improvement permit and an authorization to construct an on-site wastewater system (construction authorization) be issued before house construction begins or the septic system is installed. The purpose of this evaluation is to ensure that the soil can both absorb and treat the wastewater from your home. Septic system installation must be approved by the local health department before electrical service can be permanently connected to the home, the home occupied, and the septic system put into use.

General Condition Of Your Septic System

1. How old is your septic system?

North Carolina rules regarding the placement and design of septic systems are being improved over time. Major changes to the state rules occurred in 1977, 1982, and 1992. Current rules require a comprehensive evaluation of the soil before a septic system can be approved for that location. State rules also require home-owners to employ a trained and certified subsurface system operator for certain types of septic systems installed or repaired after 1992. These operators ensure that the system is operating well. The changes in the rules have improved the chances that your septic system will work better.

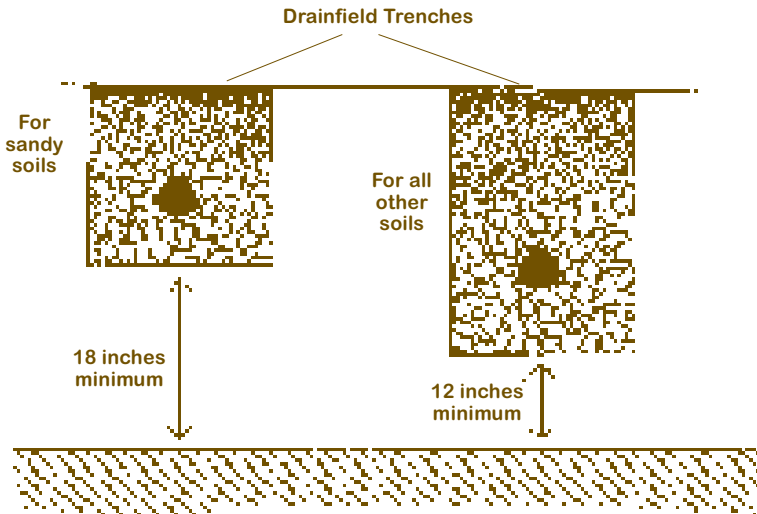
If you do not know the age and type of your septic system, this information may be available from your local health department.

1. **Circle the answer that best describes the age of your septic system.**
 - a. Your septic system was installed after 1992.
 - b. Your septic system was installed between 1982 and 1992.
 - c. Your septic system was installed between 1977 and 1982.
 - d. Your septic system was installed before 1977; OR do not know.

2. What is the depth between your drainfield and the groundwater table?

Wastewater moves from the septic tank into the drainfield and then slowly into the soil. The drainfield trenches are normally installed 2-3 feet deep. The wastewater is purified as it moves down through the soil and into the groundwater.

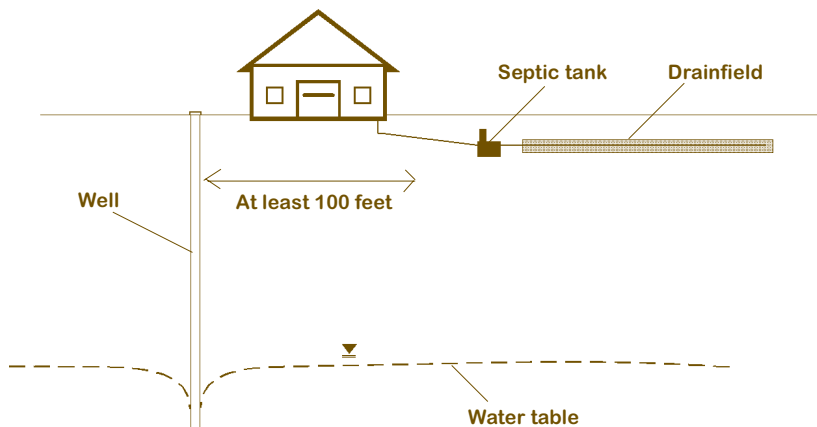
North Carolina septic rules require that the groundwater table or soil wetness conditions be at least 12 to 18 inches deeper than the drainfield trenches. Soil above the groundwater table is considered to be "aerobic." "Aerobic" means that the soil has some air in it and is not totally saturated (or filled with water). This aerobic soil is where most of the germs from the sewage are removed.



Required distance between bottom of drainfield and groundwater table

3. Where are your septic system and well located?

Once the purified wastewater drains through the soil, it becomes part of the groundwater. The best way to protect your drinking water from your septic system is to separate the two. North Carolina law requires that septic systems be placed at least 100 feet away from a well or other water source.



Safe separation distance between septic system and well

2. **Circle the answer that best describes the relationship between the location of your septic system and the groundwater.**

- a. The groundwater always remains at least 4 feet below the surface.
- b. The groundwater normally remains more than 4 feet below the surface except for very short periods of time (less than a week) during wet times of the year.
- c. The groundwater normally remains more than 2 feet below the surface except for very short periods of time (less than a week) during wet times of the year.
- d. The groundwater periodically rises to within 2 feet of the surface; OR do not know.



3. **Circle the answer that best describes the relationship between the location of your well and your septic system.**

- a. Your septic system is downhill from your well or other water source and is more than 100 feet away from it.
- b. Your septic system is uphill from your well or other water source and is more than 100 feet away from it.
- c. Your septic system is 50 to 100 feet away from your well or other water source.
- d. Your septic system is less than 50 feet away from the well or other water source; OR do not know.

4. What type of soil is your septic system installed in?

The type of soil in which your septic system is located is important for protecting the groundwater from pollution. Gently sloping, deep soils that aren't too clayey or too sandy with a deep groundwater table make the best sites. If the soil is too sandy, wastewater flows through the soil into the groundwater too fast and is not purified. On the other hand, if the soil is too clayey, wastewater flows too slowly, causing untreated sewage to collect on top of the ground. Avoid areas that have rock close to the surface, very sticky clays, or soil layers that restrict the downward flow. Any of these conditions can keep water from flowing through the soil and cause untreated sewage to collect on the ground surface, where it can flow over to your water source.

The soil should be uniform, yellow, yellowish-red, or bright red in color, and it should not have spots of gray. Gray spots indicate that the soil may be too wet to contain enough air (anaerobic conditions) during the winter and spring.

5. Are trees and shrubs planted near your septic system?

Trees or shrubs located closer than 100 feet to septic systems may cause problems. Roots from plants sometimes enter the septic tank drainfield, the tank, or the pipes, preventing the proper working of the septic system. Failing septic systems increase the likelihood of groundwater or surface water pollution.



Trees should not be located too close to septic system

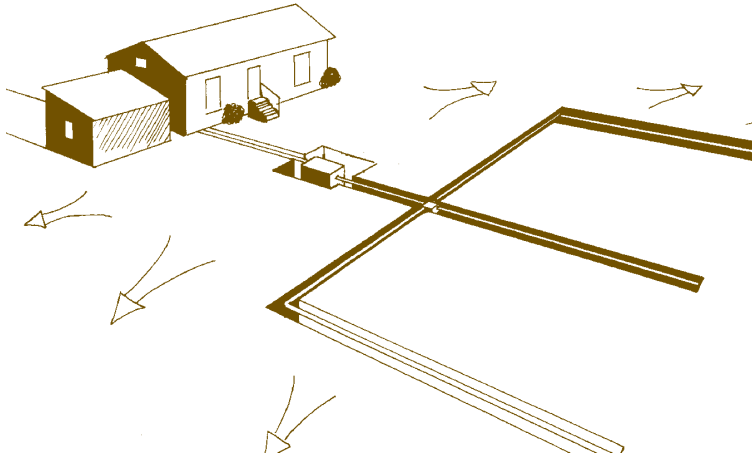
6. Does runoff drain away from your septic system?

To reduce water that flows through the soil where the drainfield is buried, keep the water that runs off your foundation drains, gutters, driveway, and other paved areas away from the drainfield of your septic system. Careful landscaping can help direct excess surface water away from your septic system.

4. Circle the answer that best describes the type of soil and conditions in which your septic system drainfield is buried.
- a. Your septic system is installed in deep, well-drained soil (not too clayey, not too sandy) to allow full absorption and treatment of wastewater or you have a low-pressure pipe system installed in sandy soil or a pretreatment system installed in any soil.
 - b. Your septic system drainfield is installed in deep red, clayey soil that drains reasonably well. If your soil is clayey, a handful of it easily breaks into small pieces when moist.
 - c. Your septic system drainfield is installed in sandy soil with a shallow groundwater and does not have a low pressure or pretreatment system.
 - d. Your septic system drainfield is installed in thin soil with hard rock, very sticky clay soils, or soil layers that restrict downward flow of water; and the system does not include a pretreatment system, such as a sand filter; OR do not know.



5. Circle the answer that best describes the location between your trees and your septic system.
- a. No trees are within 100 feet of your septic drainfield. You've never had a problem with roots in the drainfield, pipes, or tank.
 - b. No trees are within 50 feet of your drainfield.
 - c. The only trees within 50 feet of your septic drainfield are trees that grow poorly under wet conditions (most oaks, dogwoods).
 - d. Trees or shrubs within 50 feet of your drainfield that grow well under wet conditions (willows, willow oaks, some maples) or you've removed roots from drainfield lines at least once and make no effort to prevent root regrowth; OR do not know.



Runoff draining away from the septic system

6. **Circle the answer that best describes how surface water flows in your yard.**
- You have landscaped the yard to divert rain water and water from your roof, gutters, and foundation drains away from the septic system.
 - You have landscaped the yard to divert rain water away from your septic system. You're not sure where the roof, gutters, and foundation waters drain.
 - You have landscaped the yard to divert rain water away from your septic system. Your roof, gutters, and foundation drain across your septic system.
 - Water from the roof, gutters, foundation, driveway, and yard drains over your septic system; OR do not know.

Maintenance of Your Septic System

7. How much water do you use?

As with city sewers, there are limits to the amount of water septic systems can treat. However, if you have a city sewer and use too much water, a problem occurs far away at the city sewage treatment plant. If you have a septic system and use too much water, your wastewater may back up into your yard or house, since your septic system serves as your sewage treatment plant.

The soil drainfield was designed for no more than 120 gallons per bedroom per day. Most people use about 50 gallons per day of water. When the amount of water entering the septic system nears design capacity, your septic system may fail.

Problems caused by using too much water can occur throughout the year, seasonally, or from time to time. For example, the soil beneath your drainfield cannot absorb as much water in the spring, when the soil is naturally more moist, as it can absorb in the summer when the soil is drier. If you wash all your laundry in one day, you may have a temporary problem caused by overloading the soil.

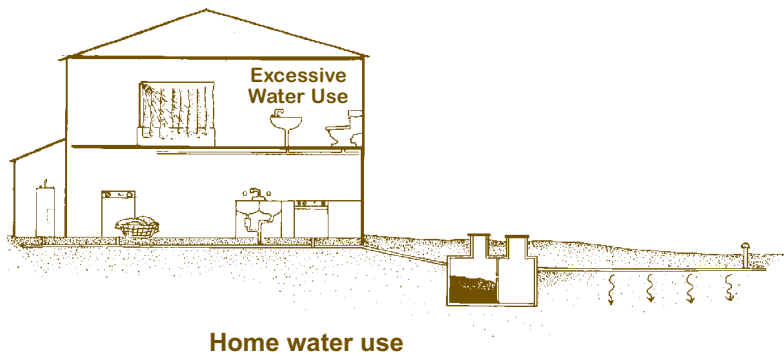
Reduce your water use by doing the following:

- Use 1.6 gallon (or less) per flush toilets.
- Periodically check the toilets and faucets to make sure that they are not leaking; fix immediately if they are leaking.
- Use faucet aerators at sinks and flow reducer nozzles at showers.
- Limit the length of your shower to 10 minutes or less.
- Do not fill the bathtub with more than 6 inches of water.
- Do not wash more than 1-2 loads of laundry per day.
- Do not use the dishwasher until it is full.

7. **Circle the answer that best describes the total amount of water you use in your house per day.**

*Note: even if you have a well, you can have a water meter installed to measure your family's water use, or you may contact your local Cooperative Extension Service Center to get help estimating your family's water use.

- You use less than 35 gallons per person per day.
- You use between 35 and 50 gallons per person per day.
- You use between 50 and 60 gallons per person per day.
- You use more than 60 gallons per person per day, you have an in-home day care center or you take in wash for others, or your toilets or faucets have water leaks; OR do not know.



8. Do you use a garbage disposal?

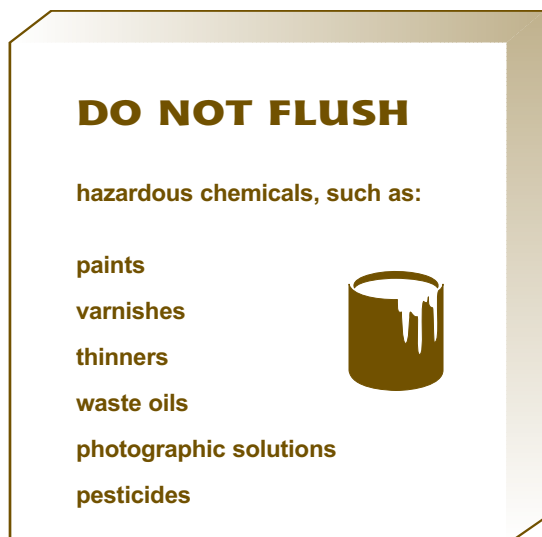
To reduce the possibility of septic system failure, restrict the use of the garbage disposal unit. Garbage disposals usually double the amount of solids added to your septic tank.

9. Do you pour grease or oil down your sink?

Do not pour grease or cooking oils down the sink drain. Grease can harden in the drainfield and clog the soil so that no water can flow through the soil. If this happens you will need to install a new drainfield.

10. Do you use cleaning products?

Use moderate amounts of cleaning products and do not pour solvents or other poisons down the drain. Don't dispose of extra cleaning products by pouring them down the drain. Do not use toilet cleaners that are placed in the toilet tank. Such chemicals can kill the good bacteria in your septic tank and in the soil beneath your drainfield. These products should go to the proper hazardous waste facility.



8. Circle the answer that best describes your garbage disposal.

- No garbage disposal.
- Have a garbage disposal but also have a separate tank that treats garbage disposal waste before it goes to the septic tank.
- Limited use of garbage disposal (3 times per week) but no separate tank.
- Daily use of garbage disposal and no separate tank; OR do not know.



9. Circle the answer that best describes how you dispose of your grease and oil.

- No disposal of grease and oil down the drain, and oil and grease wiped from cooking items with a paper towel before washing.
- Limited rinsing of grease and oil while cleaning cooking items during special occasions (holidays, or when entertaining).
- Routine rinsing of grease and oil down the drain when cleaning cooking items.
- Routine disposal of grease and oil down the drain from cooking pans, fryers, etc.; OR do not know.



10. Circle the answer that best describes your use of household cleaning products and how you dispose of solvents and poisons.

- Minimal use of household chemicals (only 2 cups per week). No disposal of harmful chemicals such as solvents, paints, thinners, disinfectants, pesticides, poisons, and other substances that can kill the bacteria in the tank and soil.
- Careful use of household chemicals only when needed to unclog pipes, clean fixtures, etc.
- Daily use of household chemicals, such as degreasers, pipe decloggers or toilet bowl sanitizers.
- Excessive amounts of cleaning agents poured down the drain or periodic disposal of solvents and other substances such as paints, paint thinners, poisons that can kill the bacteria in the tank and soil or pollute the groundwater; OR do not know.

11. Do you dispose of solid waste materials?

Do not put items down the drain that may clog the septic tank or other parts of the system. These items include cigarette butts, sanitary napkins, tampons, condoms, disposable diapers, paper towels, egg shells, and coffee grounds. Do not use your toilet for disposal of facial tissues. This adds extra solids and water to the septic system.



12. Does all your wastewater drain into your septic system?

Make sure that all wastewater produced in the house is directed into the septic system. This includes not only the wastewater from the kitchen sink and the toilets, but also wastewater from tubs, showers, and laundry facilities.

13. Have you protected your septic system from physical damage?

To protect your septic system from physical damage:

- Keep the soil over the drainfield covered with grass to prevent soil erosion.
- Be careful not to mow the lateral turn-ups if you have a special type of septic system called a “low-pressure pipe system.”
- Don’t drive over the system.
- Maintain the natural shape of the land immediately downslope of the system. Protect this area from cutting and filling.
- Do not build over the drainfield area.

11. Circle the answer that best describes how you dispose of solid products.

- a. You never use your septic system as a trash can for any solid products such as cigarette butts, tissues, sanitary napkins, tampons, condoms, cotton swabs, cat litter, coffee grounds, or disposable diapers.
- b. You occasionally (once or twice yearly) use your septic system as a trash can for cigarette butts, tissues, sanitary napkins, tampons, condoms, cotton swabs, cat litter, coffee grounds, or disposable diapers.
- c. You use your septic system every month as a trash can for cigarette butts, tissues, sanitary napkins, tampons, condoms, cotton swabs, cat litter, coffee grounds, or disposable diapers.
- d. You use your septic system every week as a trash can for cigarette butts, tissues, sanitary napkins, tampons, condoms, cotton swabs, cat litter, coffee grounds, or disposable diapers; OR do not know.

12. Circle the answer that best describes how you dispose of wastewater.

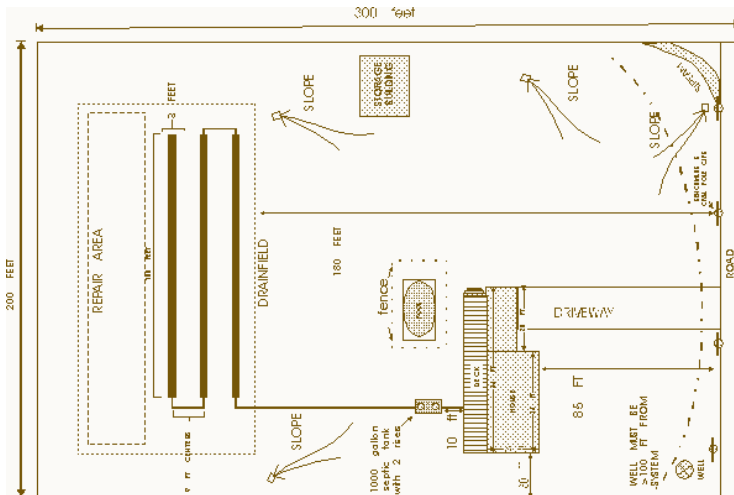
- a. All of your wastewater is disposed of in an approved septic system.
- b. All of your wastewater is disposed of in a septic system that was installed before state regulations went into effect but seems to be working okay.
- c. Some of your wastewater, such as wash water or kitchen wastewater, goes to a separate pipe that discharges into a ditch or dry well or in the woods.
- d. All of your wastewater goes to a pipe that discharges into a ditch or dry well or in the woods; OR do not know.

13. Circle the answer that best describes vehicular traffic over the septic system.

- a. No vehicles or equipment are ever driven over your septic tank or drainfield, except lawnmowers.
- b. You have carefully (once or twice) driven a car over your drainfield, but don’t cross it with heavy equipment and have never driven over the tank or pipe network.
- c. You have periodically driven vehicles over your drainfield, but don’t ever cross it with heavy equipment.
- d. You have driven over your septic tank or pipe network with vehicles or over any part of the system with heavy equipment, trucks, etc.; OR do not know.

14. Have you built over your drainfield?

Do not cover the tank or drainfield with asphalt or concrete. Do not build any additions to your house over the drainfield without first checking with your local health department. For proper function and maintenance, your entire septic system must be accessible. Use a property layout sketch to help you place new facilities on your property away from the septic system.



Property layout sketch of the septic system

15. What safety precautions do you take around your septic system?

Some simple precautions should be taken to ensure the safety of you and your family around the septic system.

- Sewage in septic systems may contain germs that can cause disease. To prevent the spread of diseases, you should wash up after checking your septic system. If untreated sewage comes to the ground surface, you should contact your local health department to get a permit to repair your system.
- Be sure to avoid spark and shock hazards on systems with pumps or electrical controls, because sometimes there are toxic or explosive gases in septic systems that can be ignited.
- **The septic tank lid should be tight at all times to prevent children from opening the lid.**

16. Has your septic tank been pumped recently?

After a few years, the solids that collect in your septic tank should be pumped out and disposed of at an approved location. If not removed, these solids will eventually block the soil in your system. The sewage will either back up into your house or flow across the ground surface over the drainfield. If this happens, it is too late to pump your tank and you will have to build a new drainfield on a different part of your lot.

14. Circle the answer that best describes the placement of additions onto your house.

- No additions to your home or construction of outbuildings, swimming pools, or driveways have been made since your septic system was installed.
- Additions to your home or construction of outbuildings, swimming pools, or driveways have been preceded by contacting your local health department.
- You have not contacted your local health department, but have a copy of your septic system permit and are sure that additions to your home or construction of outbuildings, swimming pools, or driveways have been located away from the septic system and repair area.
- An addition to your home, a swimming pool, or a driveway has been built over the septic system or repair area; OR do not know.

15. Circle the answer that best describes your work habits around the septic system.

- You wash up after checking your system. You never enter your septic tank. You secure the septic tank lid so that children cannot open it. You use caution to avoid shock and spark hazards on systems with pumps or electrical controls.
- Not applicable
- Not applicable
- You don't wash up after checking your system. You enter your septic tank. You don't secure the septic tank lid so that children can not open it. You are not cautious with the electrical parts of your septic system; OR do not know.

WARNING

Do not inspect or even look into your septic tank. Toxic gases that can kill in minutes are produced in septic tanks. Septic tanks should always be inspected by a professional.

How often your septic tank needs to be pumped depends on three things:

- The size of your tank
- The amount of wastewater you use
- The solids content of your wastewater

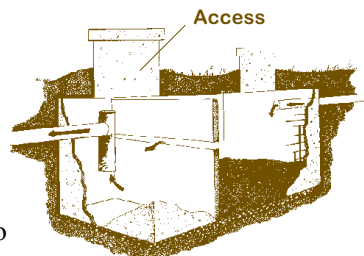
Your local health department should be able to tell you the size of your tank. Then, using the table below, determine how often your tank should be pumped. For example, if there are 4 people living in your house and your septic tank can hold 1,000 gallons, the tank should be inspected and pumped at least every three years.

Time Table for Inspecting and Pumping Your Septic Tank (in years)					
Tank Size (gallons)	Number of People Using the System				
	1	2	4	6	8
	Number of Years				
900	11	5	2	1	<1
1,000	12	6	3	2	1
1,250	16	8	3	2	1
1,500	19	9	4	3	2

Source: Adapted from "Estimated Septic Tank Pumping Frequency," by Karen Mancl. 1984. *Journal of Environmental Engineering*. Volume 110.

17. Do you have easy access to your septic system?

It is important to know the location of your septic tank system. It is also important to be able to check your septic system. Easy access to your septic tank system through an access riser allows it to be inspected and cleaned. The following diagram illustrates an access riser.



Access riser installed on septic tank

18. Have you hired a certified septic system operator?

Hire a certified operator when you have a system that uses a pump including the following:

- Low-pressure pipe system
- Pump-to-conventional system
- Pressure manifold system
- Mechanical aerobic treatment unit (ATU)
- Drip irrigation system

This operator will check the overall performance of your system and the operation of the pump, electrical controls, and alarm on a

16. Circle the answer that best describes how often your septic tank is cleaned.

- a. You have your septic tank inspected and pumped as scheduled in Table 1.
- b. You have septic tank scum and sludge levels checked each year and your septic tank pumped out as needed.
- c. You have scum and sludge levels checked and your tank pumped out about once every 5-10 years.
- d. It has been more than 5-10 years since you've had your septic tank checked and pumped out or you've never pumped out your septic tank, or you don't know if it has ever been pumped out; OR do not know.



17. Circle the answer that best describes your access to your septic tank.

- a. You have a concrete riser or manhole over your septic tank that provides easy access to the tank.
- b. You do not have a concrete riser, but the location of your tank is marked and the tank is less than six inches deep.
- c. You do not have a concrete riser, but the location of your tank is marked. The top of your tank is more than six inches deep.
- d. You do not know where your tank is located; OR do not know.



18. Circle the answer that best describes how you use a certified subsurface system operator if you have one of these four special types of septic systems: a pump-to-conventional, pressure manifold, low-pressure pipe system, or ATU system.

- a. You have hired a certified subsurface system operator if you have a pump-to-conventional, pressure manifold, or low-pressure pipe system.
- b. Not Applicable
- c. Not Applicable
- d. You have not hired a certified subsurface system operator to help operate and maintain your pump-to-conventional, pressure manifold, low-pressure pipe system, or ATU system; OR do not know.

regular basis. Hiring a certified operator will cost some money, but can provide you with professional care for your septic system.

You are required by state law to hire a certified subsurface system operator if you have a low-pressure pipe system that was installed or repaired after July 1, 1992, or if you have an aerobic treatment unit (ATU).

19. Have you talked to a certified septic system operator?

Hiring a certified operator to inspect your pump system is important. It is also important to talk to your certified operator to find out what you should do to maintain your septic system between visits.

20. Are your drainage ditches maintained?

For septic systems that use ditches or subsurface drain tiles to drain excess water from the soil, it is important that the outlets from these ditches be cleaned. If the outlet becomes plugged up, water can no longer drain from the soil into the ditch. The soil will stay too wet for the drainfield to work properly and your septic system may fail.

For more information:

You must receive a permit from your local health department before installing or repairing any septic system.

Your county health department can be a valuable source of information on the following topics:

- Site selection and construction of septic systems
- Septic system inspection and maintenance
- List of registered septic system installers
- Construction records for existing septic systems
- Information on systems that legally require a certified subsurface system operator

Related publications available from the Cooperative Extension Service:

- *About Septic Systems: What You Need to Know*
- *Septic System Owner's Guide*, AG-439-22
- *Soil Facts: Septic Systems and Their Maintenance*, AG-439-13
- *Soil Facts: Investigate Before You Invest*, AG-439-12
- *Soil Facts: Management of Single Family and Small Community Wastewater Treatment and Disposal Systems*, AG-439-11

The publications listed above are available at your county Cooperative Extension Service Center. You may also order these publications from Communication Services, Campus Box 7603, North Carolina State University, Raleigh, NC 27695-7603.

19. Circle the answer that best describes how you obtain information from your certified operator about your septic system if you have a pump system.

- a. You find out from your operator what you should be doing between visits to help the system work properly.
- b. You do not discuss your system with your certified operator but do let him/her know immediately if the alarm is activated.
- c. You turn off the alarm when it is activated, hope the problem goes away until the next scheduled visit by your certified operator.
- d. You have a pump system, but have not hired a certified operator to help you manage the system; OR do not know.

20. If you use drainage ditches, circle the answer that best describes how you maintain your drainage ditches.

- a. Your drainage ditches and outlets are maintained on your property and on surrounding properties.
- b. Your drainage ditches are well maintained on your property but not on surrounding properties.
- c. Your drainage ditch still exists but is beginning to become filled with soil or with trees, or brush growing in it or your drainage outlet is partially covered by water, soil, or debris.
- d. The outlet of your drainage ditch is blocked or your drainage ditches have filled in and water is not flowing freely through them; OR do not know.

WARNING

NEVER enter a septic tank.

The following publication is available from the North Carolina Department of Environment and Natural Resources, Division of Environmental Health (919/733-2870, web site: www.deh.enr.state.nc.us/oww/):

- *On-Site Wastewater Management Guidance Manual*, 1996.

Concept adapted for North Carolina from materials produced by the National Home*A*Syst Program, University of Wisconsin (author Karen Filchak, University of Connecticut Cooperative Extension).

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