

Well and Septic System Care in Hunterdon County



A Homeowner's Guide

Hunterdon County Health Department

314 State RT. 12, County Complex, Bldg. # 1, 2nd Floor
PO Box 2900
Flemington, NJ 08822-2900

Stop and consider how often you use water during a 24-hour period. Consider the importance of clean water coming out of your tap. Could you manage your household if your water system became polluted?

This booklet is specifically for Hunterdon County homeowners, and it stresses the importance of properly maintaining individual well and septic systems. This booklet is also designed to help homeowners understand how these systems operate, and how to keep them operating smoothly. This information should help provide long-term protection for one of our most precious resources.

Could you manage your household without a clean, safe water supply?

As you read through this booklet consider this: *Materials put down the drain today may very well come out of the faucet in the future.*

Despite the proximity of the Delaware River, the South Branch of the Raritan River, and New Jersey's two largest reservoirs, Hunterdon residents rely primarily on ground water for household water supplies. More importantly, most residents use private wells as a water source and on-site septic systems for sewage disposal.

Our most valuable resource.... A clean, available water supply

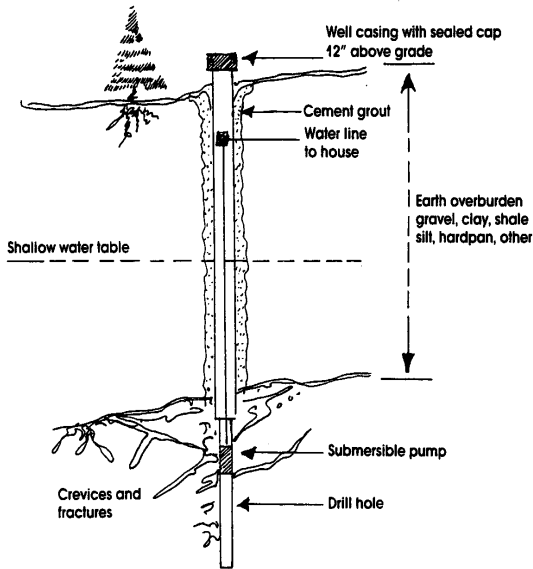


Figure #1

New Jersey well codes require that all drilled wells be cased with a minimum of 50 feet of steel pipe and be constructed with a minimum of 20 feet of casing set into bedrock. The casing is installed in sections, with each joint carefully sealed. The installation of the well, as shown in Figure # 1, along with final grouting (cementing of void) prevents surface seepage and contamination. Hunterdon County wells drilled after 1978 must have a wellhead that extends 12 inches above ground level to reduce the chances of surface water carrying pollutants into the well. Wells that were drilled before to 1978 may have the top of the well below the surface ground. Current codes require that the well be brought above the surface of the ground when a well is repaired. This retrofitting of the well reduces the likelihood of surface water intrusion. Shallow wells and springs are extremely vulnerable to pollution and should be tested frequently.

Well Water

Hunterdon County has a very complex geology, with a wide variety of soil types. Most of the aquifers consist of fractured rock formations. There is a great range of well depths throughout the county, ranging from a minimum of 50 feet to more than one thousand feet, depending on the geographic area.

As Figure #2 indicates, private wells carry a certain vulnerability. Their risk comes from how the land surface is being used – or abused. The closer a well is to a source of groundwater contamination, the higher the risk of contaminated water. While water companies are required by law to test customers' water regularly, owners of private wells are 'on their own'.

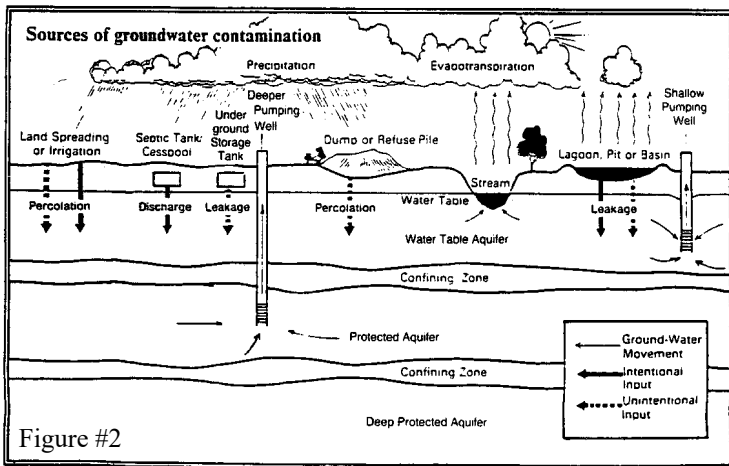


Figure #2

Water Flow from the Aquifer

When a resident turns on the tap, the well pump is activated and water is drawn out of the fractured rocks and into the well. As water is drawn from the aquifer, it will be replaced by normal rainfall or indirectly, from underground movement of water out of nearby streams and reservoirs. Ground water moves very slowly, only a few inches per year in many areas. It is easy to see that once its contaminated, an aquifer is slow to cleanse itself.

Clean Water Has Its Own Problems

Naturally occurring elements in the geology of Hunterdon County cause some variation in the natural chemistry of our drinking water. Most water in the Hunterdon County is quite 'hard', which produces calcium deposits. The 'lime' deposits (actually calcium carbonate) can be removed by soaking your kettle, humidifier, etc. overnight with white vinegar (rinse it well before re-using).

Iron and manganese are naturally occurring elements common in Hunterdon County drinking water and are not harmful to our health, but at higher concentrations can cause staining of plumbing fixtures, dishes and laundry.

Other natural elements that can be of a health concern in our water supply include arsenic and sulfur.

Natural elements in your water can be removed with water treatment equipment suited to the particular problem.

Radon gas has also been found dissolved in well water in Hunterdon County. Very high levels must be present in water to cause elevated air levels in the home. The primary source of unsafe radon levels is gas seeping into homes through basement entry points. Control efforts, therefore, should focus on these areas rather than on well water as a source. (For more information about radon gas, contact the NJDEP www.njradon.org)

Water that measures below 6.5 pH is considered excessively acidic, the optimum range is 6.5-8.5. Acidic water can cause the corrosion of plumbing. When acid is present and corrosion occurs, it is easily identified by blue-green staining where copper plumbing exists. *Acid-produced corrosion can also leach dangerous heavy metals, such as lead, from soldered joints. Treatment devices are available.*

The Hunterdon County Department of Health and New Jersey's Department of Environmental Protection recommends that residents using private wells have them tested once a year to ensure the well is free from harmful bacteria. Additional testing of nitrate, arsenic and volatile organic compounds are recommended every five years. The New Jersey Private Well Testing Act (PWTA) affects the resale of properties served by wells and also rental properties served by wells. See our website for a link to NJDEP's frequently asked questions relating to the PWTA.

Water measuring below 6.5 on the pH scale should be treated with neutralizing equipment to prevent corrosion of pipes and leaching of lead from soldered joints.

Treatment systems should be installed and maintained by a professional. The table below will give you a general idea of the types of treatment systems needed.

<u>TREATMENT</u>	<u>EFFECTIVE FOR:</u>
Activated Carbon Filtration	Some organic compounds, taste, trihalomethanes, some pesticides, odor
Air Stripping	Some volatile organics compounds, hydrogen sulfide, radon gas
Chlorination	Coliform Bacteria
Ion exchange	Hard water, calcium, manganese, iron, some heavy metals, nitrate and gross alpha
Reverse Osmosis	Nitrates, dissolved solids, certain inorganic compounds
Ultraviolet Radiation	Coliform Bacteria
Distillation	Inorganic compounds (such as nitrates, sodium chloride), some organic compounds
Granular Adsorption Media	Some inorganic compounds (such as arsenic)

Basic water analysis for new homes includes all the parameters under the NJ Private Well Testing Act

The Private Septic System

The majority of Hunterdon County homeowners rely exclusively on private septic systems to properly treat and dispose of domestic waste.

Properly designed, installed and maintained septic systems have little adverse effect on the environment

How Does A Septic System Work?

As shown in Figure 3, a septic system has two key components:

The Septic Tank: A container usually prefabricated from concrete. It receives waste water from your bathroom, kitchen and laundry room. Heavy particles settle at the bottom as sludge and light materials float to the surface of the tank forming a scum layer. Bacteria in the system help to break down and liquefy the organic matter, which is carried to the disposal field as effluent.

A septic tank should be sized to allow enough time for settling of heavy particles and flotation of scum. The partially treated effluent then flows from the septic tank to the sub-surface disposal area.

The Disposal Field: This consists of a distribution box and perforated distribution lines (laterals) installed below the ground in gravel beds or trenches where further treatment filtering action takes place. Seep-pits can also be used in some places.

Septic systems must be designed and installed to meet standards established by state law, and in some instances, local ordinances.

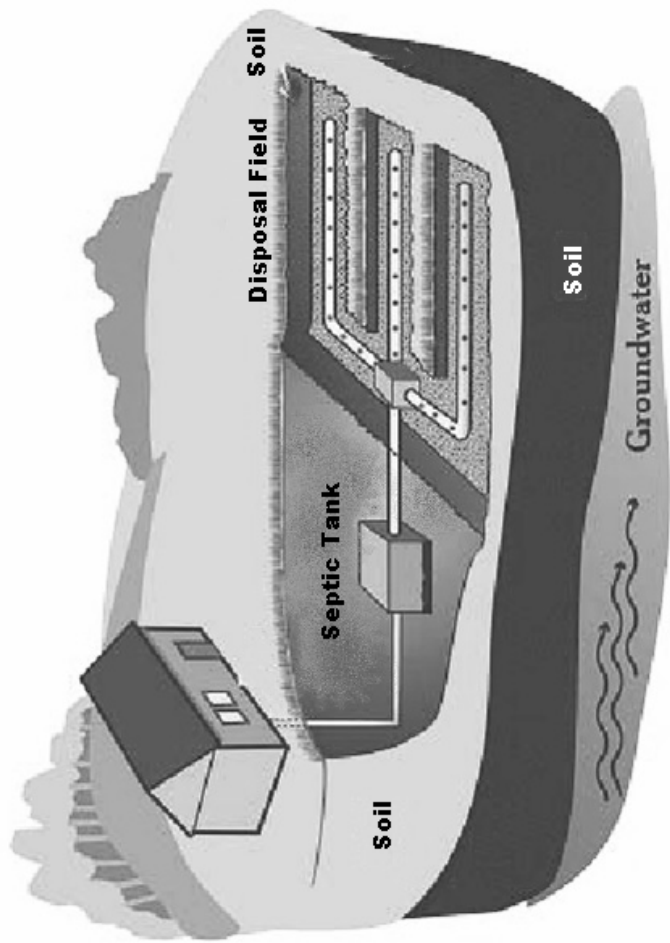


Figure #3

Septic systems must be designed and installed to meet standards established by state law, and in some instances, local ordinances.

Septic System Design

Septic Systems are designed and installed according to NJDEP regulations and, in some instances, local ordinances. These regulations require testing of the soil to determine its permeability. Various tests can be conducted, including tube permeameter, percolation test, basin flooding, pit-bailing or soil permeability class rating.

When designing a system, an engineer determines the level of the water table to ensure that it is at the required distance below the bottom of the disposal area. The size of the disposal area and the septic tank is based on the number of bedrooms in the home.

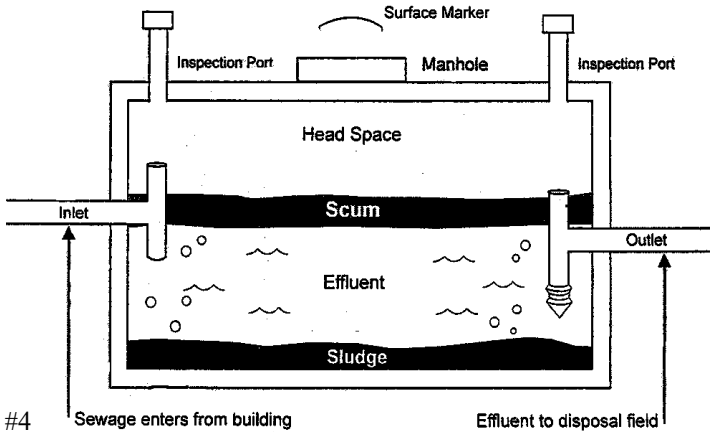


Figure #4

Caution: Gases generated within the septic tank can accumulate to toxic concentrations which have been fatal to humans. No one should ever enter a septic tank or even just peer into the tank through a manhole cover without exercising extreme caution.

Preventing Septic System Problems From *Inside* Your Home

REMEMBER:
*Proper care
and
maintenance
of your septic
system helps
ensure its
proper
functioning
and longevity*

1 Cut back on household usage – fix leaky faucets and toilets, and don't flush the toilet unnecessarily. Install low-flow fixtures for shower-heads, toilets, etc.

2 Limit the amount of cleaning agents that you use. They can be harmful to a septic system if used in excess.

3 Space your showers, laundry and dishwasher loads, allowing your system to 'rest' between high-volume uses.

4 Never allow toxic and hazardous chemicals to be disposed of through your septic system. This includes paint thinner, surplus paint, oil, gasoline or grease. These items should be saved and disposed of at the Hazardous Waste Days sponsored by the

Hunterdon County Division of Solid Waste and Recycling (see last page).

- 5 Limit paper products to the absolute minimum. Do not put coffee grounds, disposable diapers, sanitary napkins, tampons, cat litter, baby wipes and cigarette butts into your septic system.
- 6 **Use of garbage disposals is not permitted unless your system was designed for a garbage disposal.**
- 7 Avoid using septic system cleaner additives. They are not necessary, and some can interfere with the natural bacterial action of your system.
- 8 Have your septic system pumped every three years to clean out the accumulated sludge. Pumping extends the life and efficiency of your system.
- 9 Water softeners must not drain into the septic system without approval by a professional engineer.
- 10 If an ejector pump is used in a home to remove sewage, such as for a basement toilet, both the septic tank and disposal field must be 50% larger than would normally be needed.
- 11 Prior to any septic system modifications (including repairs, alterations or new installations), a permit is required by the Hunterdon County Department of Health. (See website for application)

Preventing Septic System Problems From Outside Your Home

- 1 Know exactly where your septic system is located – before you have trouble. If you can't locate it, ask a neighbor, the previous owner or your builder to help you find it. You can also check the records at the Hunterdon County Department of Health.
- 2 There should be no visible effluent, septic odor, or backup into the house. *These warning signs indicate a problem may exist.*
- 3 Direct roof drains and sump pump discharges away from your disposal field. Septic systems do not work well if you overload the drainage field.
- 4 Do not physically abuse your septic tank or disposal field by parking vehicles or placing permanent structures (such as above ground pools, decks, or driveways) over the area. Check with the Hunterdon County Department of Health for proper setback distances.
- 5 Keep trees/shrubs from growing on or close to the disposal area. This will prevent roots from clogging the distribution laterals.
- 6 Effluent filters in your septic tank need to be cleaned according to manufacturer specifications.
- 7 Systems with advanced technologies require ongoing maintenance contracts for the life of the system.

REMEMBER:
*Be sure to have
the your septic
tank pumped
out by a
licensed
pumper at
least every
three years*

Useful Community Resources

Your tax dollars are at work providing you with many resources for assistance with well and septic problems.

Hunterdon County Department of Health 908-788-1351
314 State Rt. 12, County Complex, Bldg # 1, 2nd Floor
PO Box 2900
Flemington, NJ 08822-2900
E-Mail: health@co.hunterdon.nj.us
Visit the county website at www.co.hunterdon.nj.us/health.htm

**Hunterdon County Division of
Solid Waste and Recycling** 908-788-1351
PO Box 2900
Flemington NJ 08822-2900
<http://www.co.hunterdon.nj.us/recycling.html>

NJ Department of Environmental Protection Hotline 877-926-6337

Raritan Headquarters 908-234-1852
A non-profit environmental organization
which sponsors well-testing programs for
private homeowners.

Hunterdon County Soil Conservation District 908-788-9466
Provides information on county soil types, erosion
control, storm water management

Hunterdon County Extension Service 908-788-1338
Provides useful information for home, yard
and farm care
<http://www.co.hunterdon.nj.us/rutgers.htm>

Waste Oil Disposal

Gas and service stations displaying the recycling logo are required to accept waste oil.

“Hazardous Waste Clean-Up Day”

Waste such as those listed below should never be disposed of in a septic system, but rather safely set aside and brought to the next Hunterdon County Hazardous Waste Clean-Up Day.

- * Latex Paint
- * Varnish/Stains
- * Herbicides
- * Gas/Oil Mix
- * Mercury
- * Oil Based Paint
- * Battery Acid
- * Gasoline
- * Drain Cleaner
- * Anti-freeze
- * Insecticides
- * Pool Chemicals
- * Photographic Chemicals
- * Fuel Oil/Sludge
- * Paint Thinner
- * Pesticides
- * Diesel Fuel
- * Kerosene
- * Used Motor Oil

Watch the local papers and the Hunterdon County Website for the next date, or call Hunterdon County Division of Solid Waste and Recycling at 908-788-1351.

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A clean, available water supply**



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