Charles County Department of Health

DIVISION OF ENVIRONMENTAL HEALTH SERVICES

"PERCOLATION TESTING" IN CHARLES COUNTY

WHY ARE PERCOLATION TESTS PERFORMED?

A percolation test also known as a "perc test" is performed as one step in a comprehensive process to determine if a proposed building lot can support an on-site sewage disposal system (septic system). All properties not served by public sewer must have this test before beginning construction of any structure with plumbing. Perc tests are performed when contemplating new construction, adding onto land already served by on-site systems, and when a system fails.

WHAT IS A PERCOLATION TEST?

The basic definition of a percolation test is a hole dug or bored into the ground into which water is poured, then measured and timed to determine how rapidly it will be absorbed into the soil. This is much the same way as water percolates through the coffee grounds in a coffee maker, thus the name percolation. In Charles County a percolation test is performed by digging at least three holes for new construction. One of these holes is a ground water test, the other two are the actual percolation tests. Repair percolation test usually requires at least one test but can require more.

WHAT IS A GROUND WATER TEST?

The ground water test is simply a hole dug at the lowest elevation of the proposed septic area for the purpose of determining the depth to ground water, which is defined as underground water in a zone of saturation. This ground water level must be established to ensure an adequate separation between the waste disposal system and the ground water. Current State of Maryland Regulations require a minimum four (4) foot buffer be maintained between the bottom of the septic system trenches and the ground water. This buffer is used to avoid contamination of the State of Maryland's ground water that may be used for human consumption, and to avoid flooding of your septic system by a shallow water table.

WHAT WILL THE PERCOLATION TEST TELL US?

The percolation tests will tell us first if the soil will absorb the water required for a sewage disposal system. It will also tell us how fast it will absorb the water. The rate of absorption is used along with the number of bedrooms in a residence or other factors in the case of commercial facilities, to determine the amount of septic drainfield that will be required.

HOW DEEP MUST THE HOLES BE DUG?

There is no set answer to this. Generally, the ground water test is performed first, and a hole is dug to the depth of the ground water, or to limits of the machinery, whichever comes first. Then, the percolation holes are dug at the depth of the most permeable soils that are a minimum of four (4) feet above the ground water. For example, if the ground water was encountered at 15 feet, percolation tests could be performed anywhere between 2 feet and 11 feet deep, depending on the location of the "best" percolating soils. In some areas of Charles County these good percolating soils are found very shallow, while in other areas they can be very deep.

WHAT KIND OF EQUIPMENT IS NEEDED TO PERFORM THE TEST?

Because many of the tests in Charles County are deep tests, we recommend the use of an extended backhoe or excavator for the purpose of digging the holes. We have no ability to look into the ground and determine at what depth we will encounter good soils; therefore, it is to your advantage to hire a contractor that will use/contract a machine that can go as deep as possible. In the case of a backhoe, we recommend a machine that can go at least 18 feet. Also, for backhoe/excavator dug holes, a hand auger will be needed to bore a smaller hole at the bottom in which the actual test will be performed. For holes that exceed 5 feet in depth a hand auger with extensions will be necessary in accordance with Occupational Safety and Health Administration (OSHA) Regulations. Finally, have at least 10 gallons of water on the site for each test hole (open 5-gallon buckets are preferred).

WHAT CONSTITUTES A SATISFACTORY TEST:

For a percolation test to be considered satisfactory, the soils must demonstrate the following abilities:

1. ***Function Hydraulically (i.e. Percolate)***: As mentioned above, a perc test is basically water that is poured into a hole and measured and timed to determine how rapidly it will be absorbed into the ground. According to Maryland Regulations for Charles County, Soil that will percolate water at a rate of less than 30 minutes per inch in a one (1) cubic foot hole (12" x 12" x 12") is acceptable. The use of a one (1) cubic foot hole is uncommon in Charles County because the actual test depth is often over five (5) feet deep, which (per OSHA, see above) prohibits using a shovel to dig the hole. When a round auger test hole is used, it should be no greater than 16 inches. This exposes approximately the same sidewall area as a cubic foot hole. If the round test hole is smaller than 16 inches (auger holes are commonly 8 - 10 inches) the following conversion factors will be used on the percolation rate.

DIAMETER OF PERC HOLE	CONVERSION FACTOR	INITIAL PERC RATE BEFORE CONVERSION (examples)	PERC RATE OF RECORD
16 inches	.83	23 mpi	19 mpi
12 inches	1	23 mpi	23 mpi
10 inches	1.14	23 mpi	26 mpi
8 inches	1.33	23 mpi	30 mpi

2. ***Provide Adequate Treatment***: This refers to the need for a water table test to confirm that a 4- foot buffer is present to ensure prevention of contamination of the ground water of the state.

3. ***Soil Consistency***: The purpose of performing more than one percolation test is to determine that there is soil consistency in a large enough area to support an on-site sewage disposal system. A minimum of (10, 000) square feet must be available on newly subdivided lots and be reserved solely for sewage disposal. More than 10,000 square feet may be necessary if soil and land conditions require it.

HOW DO YOU APPLY FOR A PERC TEST?

An application can be obtained from the Charles County Health Department, Environmental Health Department, Environmental Health Services. The application should be completely filled out and returned with the appropriate fees (per site), and a site plan of the property. This site plan should show land boundaries, and approximate location of the proposed house, perc location, driveway, and any existing wells or septic systems within 100 feet of the property line. Hand-drawn site plans are acceptable for testing five (5) or fewer lots. Plans for subdivisions of six (6) or more lots must be prepared by a Maryland registered engineer or land surveyor. Staking out the property lines may be required.

Type	New Construction Fee Amounts
Conventional Trench	$325.00
Conventional Sandmound	$375.00
Alternative Trench	$400.00
Alternative Sandmound	$720.00

WHAT IS A GOOD PERC LOCATION?

In choosing a perc location, you should look for an area that is on higher ground with good natural drainage. Ideally, the area should be close to the house site but lower in elevation. An area of no less than 10,000 square feet is required. The area should be free of steep slopes, creek beds, drainage swales, etc. The proposed area for an onsite sewage disposal system should be at least 100 feet from all shallow wells and at least 50 feet from deep wells.

WHO WILL BE SENT THE RESULTS FOLLOWING A PERCOLATION TEST?

Perc testing results will be mailed to the property owner and applicant following site evaluation and testing. Department representatives will not release results in the field at the completion of testing.

WHAT HAPPENS AFTER SATISFACTORY PERCOLATION TEST FOR NEW CONSTRUCTION?

After six months, the percolation test results may become null and void unless sewage easement plats are submitted for health department review and approval.

Within six (6) months, submit at least two copies of a proposed Sewage Easement Plat (SEP) (from a Maryland registered surveyor) for initial review. Upon approval one copy is required to be kept in our records. Once a SEP has been reviewed and approved the lot is considered a buildable lot.

IF YOU HAVE ANY QUESTIONS, DO NOT ASSUME, PLEASE CALL THE CHARLES COUNTY ENVIRONMENTAL HEALTH OFFICE AT 301-609-6751 OR 301-609-6753.