Percolation Tests

In order for a septic system to perform properly, the wastewater needs to be effectively treated by the soil and percolate or travel through the soil in a reasonable amount of time to be appropriately treated.

PERCOLATION TEST PROCEDURE INSTRUCTIONS

1. Location of Percolation Test Holes - The percolation (perc) test holes shall be spaced uniformly over the proposed soil absorption (leachfield) site. A **minimum of three (3) test holes** are required. More than 3 can be used if desired.

2. Test Hole Preparation - Test holes that are **4 to 12 inches** in diameter shall be dug or bored to the proposed depth of the leach field (typical depths are **30 to 40 inches**). The side walls shall be vertical and a natural soil surface (one which is not smeared from digging) shall be exposed by scraping the sides and bottom of the test hole with a sharp pointed instrument. Any loose material shall be removed from the test hole and several inches of course sand or gravel placed in the bottom of the test hole in order to prevent scouring and sealing before the water is poured in.

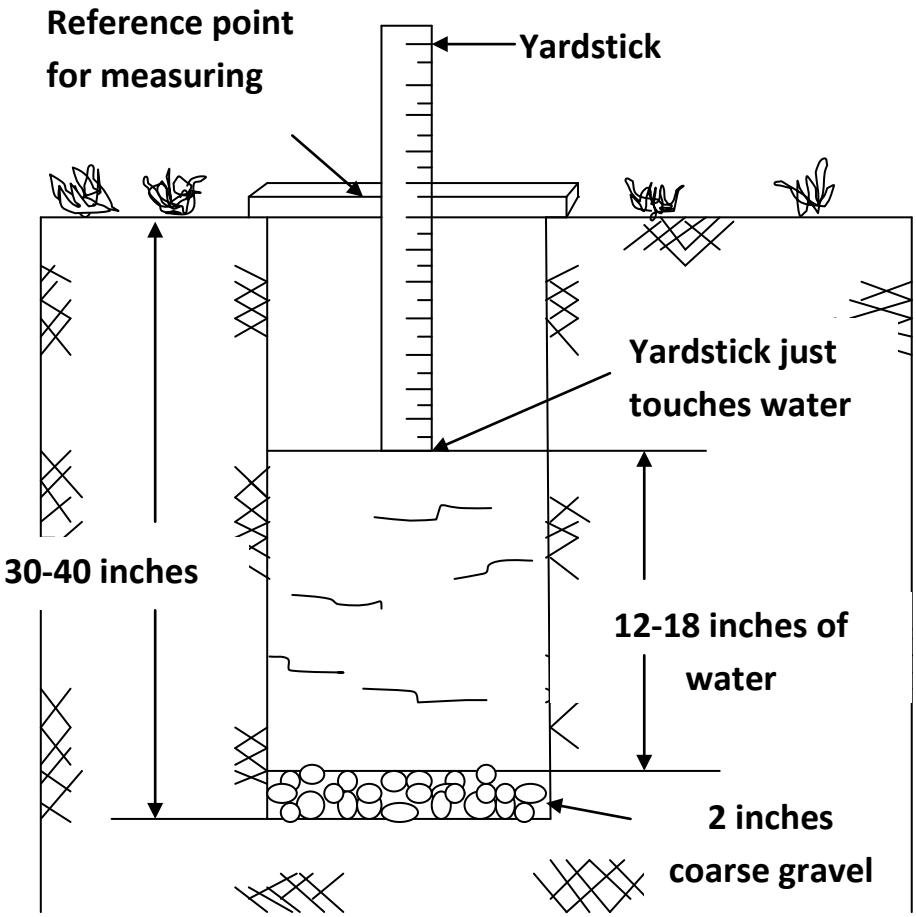
3. Presoaking - **PRESOAKING IS ABSOLUTELY REQUIRED** in order to get valid percolation test results. The purpose of presoaking is to have the water conditions in the soil reach a stable condition similar to that which exists during continual wastewater application in a leachfield. The minimum time of presoaking varies with soil type and presoaking instructions are usually sufficient to establish the proper soil moisture conditions.

   a. *Sandy or loose soils* - Fill the test hole to within several inches of the top and allow it to seep away. Fill the hole a 2nd and 3rd time and let the water seep away. If the water continues to all seep away in ten (10) minutes or less, this indicates that the soil is excessively permeable and the site is unsuitable for a standard subsurface disposal system. In this case, special requirements are needed and you'll need to contact your County Official.

   b. *Other suitable soils* - If the soil is suitable for a standard subsurface leachfield, then the test holes should be presoaked for at least 4 hours. Maintain at least 12 inches of water in the test holes for at least 4 hours, then allow the soil to swell for 12 hours (overnight is good) before starting the actual perc test measurements.

4. Percolation Rate Measurements - Start the test by filling each test hole with approximately **12 to 18 inches** of water. Let the soil re-hydrate for about 15 minutes and then refill to 12 to 18 inches deep. Next, decide on a time interval for your test. Time intervals of **IO or 15 minutes** are typical. Once decided, the time interval must remain constant throughout the test so that it can be determined when the water level drop rate has stabilized. Measure the initial water level (from a fixed reference point such as a flat board across the top of the hole) in each hole and record on the first line for each hole in the test data table. After each water level measurement, calculate the water level drop from the previous measurement and record in the test data table. Continue the test until the water

level drop rate has stabilized; i.e. - **3 consecutive equal drop rates** within 1/8 inch of each other. Please note that some test holes may take longer than others to stabilize. The test should be continued at each test hole until each drop rate stabilizes. Also please note, a minimum of **6 inches** of water should be maintained in the test hole. If the level drops below 6 inches, some additional water should be added between time intervals. If water level drops fluctuate, use the final of 6 intervals for calculations.



Side view of a typical percolation test. Yardstick is lowered to the surface of the water after each time interval. Time interval and measurement are noted and recorded. When measuring use the reference point as a guide.

PERCOLATION TEST DATA

Performed by: _____ Test Date: _____

INTERVAL: The water levels were measured every ____ minutes.
Holes were pre-soaked for _____ (time).

	Hole #1		Hole #2		Hole #3		Hole #4		Hole #5		Hole #6	
Depth of Hole												
Elasped Time	Water Level	Drop inches	Water Level	Drop inches	Water Level	Drop inches	Water Level	Drop inches	Water Level	Drop inches	Water Level	Drop inches

Final Time						
Final Drop						
Perc Rate						

To calculate perc rate:

Perc Rate (minutes per inch): Time Interval (minutes) / Final Drop (in inches)

Example: 10min. divided by 2 1/8" = 10/2.125 = 4.70 minutes/one inch of drop
HELPFUL CONVERSIONS:
1/8 =.125, 1/4 =.25, 3/8 =.375, 1/2 =.5, 5/8 =.625, 3/4=.75, 7/8 =.875

ABSORTION SYSTEM DESIGN PERCOLATION RATE: If 3-5 holes were tested, use the slowest (highest number) rate from all of the holes tested. If 6 or more were tested, use the average rate.