

## **Percolation Test Procedure**

**Definition-** The percolation test is a field procedure conducted in the soil horizon(s) selected for installation of the proposed subsurface soil absorption system for the purpose of observing the rate that clean water will permeate the soil under saturated conditions. The test provides a method for approximating the actual movement of wastewater through the soil which will occur during operation of the subsurface soil absorption system.

### **Test Holes**

1. Test holes shall be located at points and depths selected by and/or approved by the district or local health department.
2. The depth of the test hole shall be placed in the “slowest” portion of the horizon(s) selected for installation of the absorption trenches.
3. The portion of the test hole penetrating the horizon(s) selected for placement of the absorption trenches shall be 7 (±) 2 inches in diameter. Minimum acceptable horizon thickness is twelve (12) inches. The diameter of the test hole above the selected horizon(s) may be as large as necessary to conduct the test and prepare the hole in the selected soil horizon(s).
4. Test holes shall, where possible, be constructed within four (4) to six (6) feet of an existing profile hole.
5. A portion of the material excavated from the test hole should be mounded around the test hole to prevent surface water runoff from entering the hole in the event of rainfall during the period preceding and continuing through the conduct of the test.
6. Where indicated the bottom and sidewalls of the hole shall be scarified with a sharp pointed instrument or knife to remove any smeared soil surfaces. Two inches of clean coarse sand or clean fine gravel (pea gravel) shall be added to the hole to protect the bottom infiltrative surface from scouring and sedimentation.

### **Presoaking**

1. Swelling Procedure-When shrink-swell soils are suspected the soil surrounding the test hole shall be saturated for at least 24 hours by keeping at least 12 inches of water in the hole for the 24 hour period. An additional three days for swelling may be required during dry periods when cracking has occurred. After completion of the swelling procedure stated above the hole shall be left overnight before proceeding with the measurement procedure.
2. Saturation Procedure-All test holes not subject to the swelling procedure shall be kept saturated with at least 12 inches of water for a 4 hour period on the day preceding the measurement of the percolation rate. Residual water in the hole shall be left to provide overnight soaking.

Measurement of Percolation Rate-All measurements shall be made from a fixed reference point.

1. Test holes with 6 inches or less of water remaining after the overnight soaking period.

- a. Carefully fill the hole with water to a depth of 6 inches over the sand/gravel.
  - b. Record water surface drop every 30 minutes for a 4 hour period.
  - c. After recording the water surface drop each 30 minutes estimate if, based on the last reading, the hole will go dry add sufficient water to maintain not more than a one (1) inch water depth over the sand/gravel at the end of the test period.
  - d. The drop measured during the last 30 minute period shall be used to compute the percolation rate for the hole tested.
  - e. In soils where the first 6 inches of water seep away in less than 30 minutes after the overnight saturation period, add an additional 6 inches of water and the time interval between measurements shall be taken as 10 minutes and the test run to completion, i.e. hole goes dry. The drop that occurs during the final 10 minutes is used to calculate the percolation rate.
2. Test hole with more than 6 inches of water remaining after the overnight soaking period. The water depth over the gravel shall be recorded. More than 6 inches of water remaining in the hole after soaking procedure is prima-facie evidence of unsatisfactory for installation of a subsurface soil absorption system.