

# Procedures for Conducting Percolation Tests

**1. LOCATION:** Test holes shall be located in an area that complies with the Division of Environmental Health site criteria. Test holes alongside roads or in areas where leach lines cannot be installed will not be accepted.

**2. TYPE OF HOLE:** Dig, or bore a hole 4 to 14 inches in diameter to the depth of the soil strata to be tested. Carefully scarify the sides of the hole to remove smeared soil, exposing a natural soil surface. Remove all loose material from the hole and place a section of perforated pipe in the hole and fill the annular space with fine gravel. Percolation rate adjustment factors for the addition of a gravel pack and/or smaller hole size must be employed to adjust observed results back to the Ryon Standard Percolation Test (12 inch square or 14 inch round hole with no gravel pack). The observed percolation rate in MPI is multiplied by the adjustment factor to obtain the adjusted percolation rate.

The adjustment factor (AF) can be calculated as follows: (drainable voids = 35%)

$$AF = d_h^2 \div d_p^2 + 0.35(d_h^2 - d_p^2) \text{ and see table below}$$

**TABLE OF TYPICAL VALUES**

$d_p$	$d_h$	AF
4	6	1.57
4	8	1.95
4	10	2.20
4	12	2.37
3	5	1.71
3	6	1.95
3	8	2.27
3	10	2.45
3	12	2.56

Percolation tests are to be performed at the depth of the proposed trench bottom. If percolation tests are the only measure of permeability being used in the evaluation, then percolation tests may also need to be performed at a depth of 3 feet below the proposed trench bottom demonstrating adequate permeable soil depth beneath trench bottom. These deeper tests can be accomplished in the bottom of a backhoe excavation.

**3. PRESOAK:** In order to approximate soil conditions under saturated conditions, it is necessary to presoak the percolation test hole by repeatedly filling the hole with water over a 24 hour period immediately preceding the test, unless tests are performed during wet weather as defined by the Division of Environmental Health.

#### **4. PERCOLATION RATE MEASUREMENT:**

**4.1** If water is remaining in the percolation test hole 6 hours after the last addition of presoak water, add or remove water to a depth of six (6) inches. >From a fixed reference point measure the drop in water level over a 60 minute period. The drop in this 60 minute period is the percolation rate.

**4.2** If no water is remaining in the percolation test hole 6 hours after the last addition of presoak water, add water to a depth of six (6) inches. From a fixed reference point measure the drop in water level hourly for at least four (4) hours, adding water each time to bring the level back up to a depth of six (6) inches. The testing periods must be continued until a stabilized percolation rate (ie. Three consecutive trial periods with rates within 10% of each other) is reached. Test results are reported in minutes per inch.

**4.3** If no water is remaining after the first 60 minutes of the testing described in 4.2 above, add water to a depth of six (6) inches. From a fixed reference point measure the drop in water level at regular intervals of time (e.g., 10, 15, 30 minute intervals), adding water each time to bring the level back up to a depth of six (6) inches. The testing periods must be continued until a stabilized percolation rate (i.e. three consecutive trial periods with rates within 10% of each other) is reached. Test results are reported in minutes per inch.

**All test holes must be dry within 24 hours of beginning measurements.** Final approval of a site for an individual sewage disposal system depends on several factors, and not solely on a percolation test result. Final determination of the suitability of the particular site will be made by the Division of Environmental Health.