

PERCOLATION TEST PROCEDURE

INSTRUCTIONS

General Information - Complete the general information areas of sections 1., 2., and 3. at the top of the data sheet.

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

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 42 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 coarse sand or gravel placed in the bottom of the test hole in order to prevent scouring and sealing before the water is poured in.

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 leach field. The minimum time of presoaking varies with soil type and soil conditions, but must be sufficiently long so that the water seeps away at a steady rate. The following 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, the special requirements of Chapter 11, Section 36(d) shall be followed. If water remains after 10 minutes, then further presoaking is necessary before taking any measurements. Refer to the next section for further presoaking instructions.
- b. Other suitable soils - If the soil is suitable for a standard subsurface leach field, 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.

Perc Rate Measurements - Start the test by filling each test hole with approximately 12 to 18 inches of water. Let the soil rehydrate 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 10 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 "Start" line in the test data table. To continue, record the actual water level in each hole at the end of each successive time interval. 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 (right half of each column) has stabilized; ie. - 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. Before you use the test data sheet, **make several extra blank copies before you start** in case the tests take more than 10 intervals to stabilize or if you intend to use more than 3 test holes.

Perc Rate Calculation - After the water level drop rates have stabilized in all of the test holes, transfer the last water level drop measurement to the final drop row in the data table. To calculate the perc rate for each test hole, divide the time interval by the final drop. This is the perc rate in minutes per inch(MPI). Depending on how many test holes were used, determine the design percolation rate using either 3a or 3b at the bottom of the percolation test results data sheet.

An Example Test Data Sheet is provided on the back of these instructions to demonstrate how to record the data.

PERCOLATION TEST RESULTS

1. Performed by: Mike Plumber Test Date(s): 6-23 & 6-24, 99
 Credentials or Status of Tester: Contractor / installer
 (Owner, contractor, installer, engineer, geologist, sanitarian, soil scientist, or other)
2. The **time interval (ti)** between water level measurements was: 10 minutes.
3. **TEST DATA:** The test holes were **PRESOAKED** for: hours, or X overnight

Test Hole # is: 1 2 3
 Hole depth (inches) = 34 " 38 " 37 "

Interval Number	Elapsed Time	Water Level / Drop	Water Level / Drop	Water Level / Drop
Start =	<u> 0 </u> min	<u> 17 </u> "		
1	<u> 10 </u>	<u> 18 1/4 </u>	<u> 1 1/4 </u> ←	Water level drop between intervals
2	<u> 20 </u>	<u> 19 1/4 </u>	<u> 1 3/4 </u> ←	The actual water level below the top of the test hole
3	<u> 30 </u>	<u> 20 </u>		
4	<u> 40 </u>	<u> 20 5/8 </u>	<u> 5/8 </u>	Refill hole if needed and Re-measure actual water level
5	<u> 50 </u>	<u> 15 </u>	<u> Refill </u> ←	
6	<u> 60 </u>	<u> 15 1/2 </u>	<u> 1/2 </u>	Continue test until 3 consecutive "drops" are the same to within 1/8 inch total variation
7	<u> 70 </u>	<u> 15 7/8 </u>	<u> 3/8 </u>	
8	<u> 80 </u>	<u> 16 3/8 </u>	<u> 1/2 </u>	

Final Drop
(NOT Total) = 1/2 "

 Perc rate(mpi) is:
 [ti / Final Drop] = 10 / 1/2 = 20.0 mpi

- a. If **6 or more holes** were tested, the **average perc rate** was: NA mpi, or
 b. If **3 to 5 holes** were tested, the **slowest perc rate** (largest number) was: 20.0 mpi

PERCOLATION TEST RESULTS

1. Performed by: _____ Test Date(s): _____

Credentials or Status of Tester: _____

(Owner, contractor, installer, engineer, geologist, sanitarian, soil scientist, or other)

2. The **time interval (ti)** between water level measurements was: _____ minutes.

3. **TEST DATA:** The test holes were **PRESOAKED** for: _____ hours, or ___ overnight.

Test Hole # is: _____

Hole depth (inches) = _____

Interval Number	Elapsed Time	Water Level / Drop	Water Level / Drop	Water Level / Drop
Start =	0 min	_____	_____	_____
1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
5	_____	_____	_____	_____
6	_____	_____	_____	_____
7	_____	_____	_____	_____
8	_____	_____	_____	_____
9	_____	_____	_____	_____
10	_____	_____	_____	_____

Final Drop

(NOT Total) = _____

Perc rate(mpi) is:

[t_i / Final Drop] = _____

a. If **6 or more holes** were tested, the **average perc rate** was: _____ mpi, or

b. If **3 to 5 holes** were tested, the **slowest perc rate** (largest number) was: _____ mpi.

LOADING RATE TABLE

<u>Percolation Rate (minutes per inch)</u>	<u>Loading Rate</u>	<u>Percolation Rate (minutes per inch)</u>	<u>Loading Rate</u>
	Cannot use	31	0.39
Less than 1 mpi	this generic	32	0.385
	package *	33	0.38
		34	0.375
1 to 5 mpi	0.80	35	0.37
6	0.75	36	0.365
7	0.71	37	0.36
8	0.68	38	0.357
9	0.65	39	0.353
10	0.62	40	0.35
11	0.60	41	0.347
12	0.58	42	0.343
13	0.56	43	0.34
14	0.54	44	0.337
15	0.52	45	0.333
16	0.505	46	0.33
17	0.49	47	0.327
18	0.48	48	0.325
19	0.47	49	0.323
20	0.46	50	0.32
21	0.45	51	0.318
22	0.44	52	0.316
23	0.435	53	0.314
24	0.43	54	0.312
25	0.42	55	0.31
26	0.415	56	0.308
27	0.41	57	0.306
28	0.405	58	0.304
29	0.40	59	0.302
30	0.395	60	0.30
		More than 60 mpi	Cannot use this generic Package *

* Note - If the perc rate for your site is less than 1 mpi or greater than 60 mpi, you cannot use this generic application package. You must hire a Wyoming Registered Professional Engineer and submit an application customized for your specific site conditions.