

**TITLE 18. ENVIRONMENTAL QUALITY**  
**CHAPTER 9. WATER POLLUTION CONTROL**  
**PART E. TYPE 4 GENERAL PERMITS**

**R18-9-E305. 4.05 General Permit: Gravelless Trench, Less Than 3000 Gallons Per Day Design Flow**

- A.** A 4.05 General Permit allows for the use of a gravelless trench with less than 3000 gallons per day design flow receiving wastewater treated to a level equal to or better than that specified in R18-9-E302(B).
1. Definition. For purposes of this Section, a “gravelless trench” means a disposal technology characterized by installation of a proprietary pipe and geocomposite or other substitute media into native soil instead of the distribution pipe and aggregate fill used in a trench allowed in R18-9-E302.
  2. A permittee may use a gravelless trench if suitable gravel or volcanic rock aggregate is unavailable, excessively expensive, or if adverse site conditions make movement of gravel difficult, damaging, or time consuming.
- B.** Performance. An applicant shall design a gravelless trench so that treated wastewater released to the native soil meets the following criteria:
1. TSS of 75 milligrams per liter, 30day arithmetic mean;
  2. BOD<sub>5</sub> of 150 milligrams per liter, 30day arithmetic mean;
  3. Total nitrogen (as nitrogen) of 53 milligrams per liter, 5month arithmetic mean; and
  4. Total coliform level of 100,000,000 (Log<sub>10</sub> 8) colony forming units per 100 milliliters, 95th percentile.
- C.** Notice of Intent to Discharge. In addition to the Notice of Intent to Discharge requirements specified in R18-9-A301(B) and R18-9-A309(B), an applicant shall submit the following:
1. The soil absorption area that would be required if a conventional disposal trench filled with aggregate was used at the site,
  2. The configuration and size of the proposed gravelless disposal works, and
  3. The manufacturer’s installation instructions and warranty of performance for absorbing wastewater into the native soil.
- D.** Design requirements. In addition to the applicable requirements in R18-9-A312, an applicant shall:
1. Ensure that the top of the gravelless disposal pipe or similar disposal mechanism is at least 6 inches below the surface of the native soil and 12 to 36 inches below finished grade if approved fill is placed on top of the installation;
  2. Calculate the infiltration surface as follows:
    - a. For 8-inch diameter pipe, 2 square feet of absorption area is allowed per linear foot;
    - b. For 10-inch diameter pipe, 3 square feet of absorption area is allowed per linear foot;
    - c. For bundles of two pipes of the same diameter, the absorption area is calculated as 1.67 times the absorption area of one pipe; and
    - d. For bundles of three pipes of the same diameter, the absorption area is calculated as 2.00 times the absorption area of one pipe;
  3. Use a pressure distribution system meeting the requirements of R18-9-E304 in medium sand, coarse sand, and coarser soils; and
  4. Construct the drainfield of material that will not decay, deteriorate, or leach chemicals or byproducts if exposed to sewage or the subsurface soil environment.
- E.** Installation requirements. In addition to the applicable requirements in R18-9-A313(A), an applicant shall:
1. Install the gravelless pipe material according to manufacturer’s instructions if the instructions are consistent with this Chapter,
  2. Ensure that the installed disposal system can withstand the physical disturbance of backfilling and the load of any soil cover above natural grade placed over the installation, and
  3. Shape any backfill and soil cover in the area of installation to prevent settlement and ponding of rainfall for the life of the disposal works.
- F.** Operation and maintenance requirements. In addition to the applicable requirements in R18-9-A313(B), the permittee shall inspect the finished grade in the vicinity of the gravelless disposal works for maintenance of proper drainage and protection from damaging loads.