

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

**R18-9-E319. 4.19 General Permit: Sand-Lined Trench, Less Than 3000 Gallons Per Day Design Flow**

- A.** A 4.19 General Permit allows for the use of a sand-lined trench 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 “sand-lined trench” means a disposal technology characterized by:
    - a. Engineered placement of sand or equivalently graded glass in trenches excavated in native soil,
    - b. Wastewater dispersed throughout the media by pressure distribution technology as specified in R18-9-E304 using a timer-controlled pump in periodic uniform doses that maintain unsaturated flow conditions, and
    - c. Wastewater treated during travel through the media and absorbed into the native soil at the bottom of the trench.
  2. An applicant may use a sand-lined trench if:
    - a. The native soil is excessively permeable,
    - b. There is little native soil overlying fractured or excessively permeable rock, or
    - c. Reduction in setback distances, or minimum vertical separation is desired.
- B.** Performance. An applicant shall ensure that a sand-lined trench is designed so that treated wastewater released to the native soil meets the following criteria:
1. TSS of 20 milligrams per liter, 30-day arithmetic mean;
  2. BOD<sub>5</sub> of 20 milligrams per liter, 30-day arithmetic mean;
  3. Total nitrogen (as nitrogen) of 53 milligrams per liter, five-month arithmetic mean; and
  4. Total coliform level of 100,000 (Log<sub>10</sub> 5) colony forming units per 100 milliliters, 95th percentile.
- C.** Notice of Intent to Discharge. In addition to the Notice of Intent to Discharge requirements in R18-9-A301(B) and R18-9-A309(B), an applicant shall submit specifications for the proposed media in the trench.
- D.** Design requirements. In addition to the applicable requirements in R18-9-A312, an applicant shall ensure that:
1. The media used in the trench is mineral sand, crushed glass, or cinder sand and that:
    - a. The media conforms to “Standard Specifications for Concrete Aggregates, C33-03,” which is incorporated by reference in R18-9-E308(D)(2), “Standard Test Method for Materials Finer than 75- $\mu$ m (No. 200) Sieve in Mineral Aggregates by Washing, C117-04 (2004),” published by the American Society for Testing and Materials, or an equivalent method approved by the Department. This material is incorporated by reference and does not include any later amendments or editions of the incorporated material. Copies of the incorporated material are available for inspection at the Arizona Department of Environmental Quality, 1110 W. Washington, Phoenix, AZ 85007 or may be obtained from the American Society for Testing and Materials International, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959; and
    - b. Sieve analysis complies with the “Standard Test Method for Materials Finer than 75- $\mu$ m (No. 200) Sieve in Mineral Aggregates by Washing, C11704,” which is incorporated by reference in subsection (D)(1)(a), or an equivalent method approved by the Department;
  2. Trenches.
    - a. Distribution pipes are capped on the end;
    - b. The spacing between trenches is at least two times the distance between the bottom of the distribution pipe and the bottom of the trench or 5 feet, whichever is greater;
    - c. The inlet filter media surface, wastewater distribution pipe, and bottom of the trench are level and the maximum effluent loading rate is not more than 1.0 gallon per day per square foot of sand media inlet surface;
    - d. The depth of sand below the gravel layer containing the distribution system is at least 24 inches;
    - e. The gravel layer containing the distribution system is 5 to 12 inches thick, at least 36 inches wide, and level;
    - f. Permeable geotextile fabric is placed at the base of and along the sides of the gravel layer, as necessary. The applicant shall ensure that:
      - i. Geotextile fabric is placed on top of the gravel layer, and
      - ii. Any cover soil placed on top of the geotextile fabric is capable of maintaining vegetative growth while allowing passage of air;
    - g. At least one observation port is installed to the bottom of each sand lined trench;
    - h. If the trench is installed in excessively permeable soil or rock, at least 1 foot of loamy sand is placed in the trench below the filter media. The minimum vertical separation distance is measured from the bottom of the loamy sand; and
    - i. The trench design is based on the design flow, native soil absorption area at the trench bottom, minimum vertical separation below the trench bottom, design effluent infiltration rate at the top of the sand fill, and the adjusted soil absorption rate for the final effluent quality; and
  3. The dosing system consists of a timer-controlled pump, electrical components, and distribution network and that:
    - a. Orifice spacing on the distribution piping does not exceed 4 square feet of media infiltrative surface area per orifice, and
    - b. The dosing rate is at least four doses per day and not more than 24 doses per day.
- E.** Installation requirements. In addition to the applicable requirements in R18-9-A313(A), an applicant shall ensure that the filter media is placed in the trench to prevent differential settling and promote a uniform density throughout of 1.3 to 1.4 grams per cubic centimeter.
- F.** Operation and maintenance requirements. In addition to the applicable requirements in R18-9-A313(B), the permittee shall ensure that:
1. The septic tank filter and pump tank are inspected and cleaned;
  2. The dosing tank pump screen, pump switches, and floats are cleaned yearly and any residue is disposed of lawfully; and
  3. Lateral lines are flushed and the liquid waste discharged into the treatment system headworks.