

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

**R18-9-E316. 4.16 General Permit: Nitrate-Reactive Media Filter, Less Than 3000 Gallons Per Day Design Flow**

- A.** A 4.16 General Permit allows for the construction and use of a nitrate-reactive media filter receiving pretreated wastewater.
1. Definition. "Nitrate-reactive media filter" means a treatment technology characterized by:
    - a. The application of pretreated, nitrified wastewater to a packed bed filter in a containment structure. A packed bed filter consists of nitrate-reactive media that receives pretreated wastewater under appropriate design and operational conditions, and
    - b. The ability of the nitrate-reactive filter to further treat the nitrified wastewater by removing total nitrogen by chemical and physical processes.
  2. An applicant shall use a nitrate-reactive media filter with a treatment or disposal works to pretreat and dispose of the wastewater.
  3. An applicant may use a nitrate-reactive media filter if nitrogen reduction is required under this Article.
- B.** Restrictions. The applicant shall not use any product to supply pretreated wastewater to the nitrate-reactive media filter unless:
1. The product meets the pretreatment requirements for the filter based on product performance information in the product listing, and
  2. The product is listed by the Department as a reviewed product under R18-9-A309(E).
- C.** Performance. An applicant shall ensure that a nitrate-reactive media filter is designed so that it produces treated wastewater that does not exceed the following criteria:
1. TSS of 30 milligrams per liter, 30-day arithmetic mean;
  2. BOD<sub>5</sub> of 30 milligrams per liter, 30-day arithmetic mean;
  3. Total nitrogen (as nitrogen) of 10 milligrams per liter, five-month arithmetic mean; and
  4. Total coliform level of 1,000,000 (Log<sub>10</sub> 6) colony forming units per 100 milliliters, 95th percentile.
- D.** 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:
1. The name and address of the filter manufacturer;
  2. The filter model number;
  3. The manufacturer's requirements for pretreated wastewater supplied to the nitrate-reactive media filter;
  4. The manufacturer's specifications for design, installation, and operation for the nitrate-reactive media filter system and appurtenances;
  5. The manufacturer's warranty for the nitrate-reactive media filter system and appurtenances;
  6. The manufacturer's operation and maintenance recommendations to achieve a 20-year operational life for the nitrate-reactive media filter system and appurtenances; and
  7. The manufacturer name and model number for all appurtenances that significantly contribute to achieving the performance required in subsection (C).
- E.** Design requirements. In addition to the applicable design requirements specified in R18-9-A312, an applicant shall ensure that:
1. The nitrate-reactive media filter and appurtenances conform with manufacturer's specifications,
  2. The loading rate of pretreated wastewater to the nitrate-reactive media inlet surface meets the manufacturer's specification and does not exceed 5.00 gallons per day per square foot of media inlet surface area, and
  3. The bed packed with nitrate reactive media is at least 24 inches thick.
- F.** Installation requirements. In addition to the applicable requirements in R18-9-A313(A), an applicant shall ensure that:
1. The nitrate-reactive media filter and appurtenances are installed according to manufacturer's specifications to achieve proper wastewater treatment, hydraulic performance, and operational life; and
  2. Anti-buoyancy devices are installed when high water table or extreme soil saturation conditions are likely during operational life of the facility.
- G.** Operation and maintenance requirements. In addition to the applicable requirements in R18-9-A313(B) and the manufacturer's specifications for the nitrite-reactive media filter, the permittee shall not dispose of corrosives or other materials that are known to damage the nitrate-reactive media filter system into the on-site wastewater treatment facility.