

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

R18-9-E311. 4.11 General Permit: Peat Filter, Less Than 3000 Gallons Per Day Design Flow

- A.** A 4.11 General Permit allows for the use of a peat filter 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 “peat filter” means a disposal technology characterized by:
 - a. The dosed delivery of treated wastewater to the peat bed, which can be a manufactured module or a disposal bed excavated in native soil and filled with compacted peat;
 - b. Wastewater passing through the peat that is further treated by removal of positively charged molecules, filtering, and biological activity before entry into native soil; and
 - c. If the peat filter system is constructed as a disposal bed filled with compacted peat, wastewater that is absorbed into native soil at the bottom and sides of the bed.
 2. An applicant may configure a modular system if a portion of the wastewater that has passed through the peat filter is recirculated back to the pump chamber.
 3. An applicant may use a peat filter system if:
 - a. The native soil is excessively permeable,
 - b. There is little native soil overlying fractured or excessively permeable rock,
 - c. A reduction in setback distances or minimum vertical separation is desired, or
 - d. Cold weather inhibits performance of other treatment or disposal technologies.
- B.** Performance. An applicant shall ensure that a peat filter is designed so that it produces treated wastewater that meets the following criteria:
1. TSS of 15 milligrams per liter, 30day arithmetic mean;
 2. BOD₅ of 15 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 (Log₁₀ 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 specified in R18-9-A301(B) and R18-9-A309(B), an applicant shall submit:
1. Specifications for the peat media proposed for use in the peat filter or provided in the peat module, including:
 - a. Porosity;
 - b. Degree of humification;
 - c. pH;
 - d. Particle size distribution;
 - e. Moisture content;
 - f. A statement of whether the peat is air dried, and whether the peat is from sphagnum moss or bog cotton; and
 - g. A description of the degree of decomposition;
 2. Specifications for installing the peat media; and
 3. If a peat module is used:
 - a. The name and address of the manufacturer,
 - b. The model number, and
 - c. A copy of the manufacturer’s warranty.
- D.** Design requirements.
1. If a pump tank is used to dose the peat module or bed, an applicant shall:
 - a. Ensure that the pump tank is sized to contain the dose volume and a reserve volume above the high water alarm that will contain the volume of daily design flow; and
 - b. Use a control panel with a programmable timer to dose at the applicable loading rate.
 2. Peat module system. In addition to the applicable requirements in R18-9-A312, the applicant shall:
 - a. Size the gravel bed supporting the peat filter modules to allow it to act as a disposal works and ensure that the bed is level, long, and narrow, and installed on contour to optimize lateral movement away from the disposal area;
 - b. For modules designed to allow wastewater flow through the peat filter and base material into underlying native soil, size the base on which the modules rest to accommodate the soil absorption rate of the native soil;
 - c. Place fill over the module so that it conforms to the manufacturer’s specification. If the fill is planted, the applicant shall use only grass or shallow rooted plants; and
 - d. Ensure that the peat media depth is at least 24 inches, the peat is installed with the top and bottom surfaces level, and the maximum wastewater loading rate is 5.5 gallons per day per square foot of inlet surface at the rated daily design flow, unless the Department approves a different wastewater loading rate under R18-9-A309(E).
 3. Peat filter bed system. In addition to the applicable requirements in R18-9-A312, the applicant shall ensure that:
 - a. The bed is filled with peat derived from sphagnum moss and compacted according to the installation specification;
 - b. The maximum wastewater loading rate is 1 gallon per day per square foot of inlet surface at the rated daily design flow;
 - c. At least 24 inches of installed peat underlies the distribution piping and 10 to 14 inches of installed peat overlies the piping;
 - d. The cover material over the peat filter bed is slightly mounded to promote runoff of rainfall. The applicant shall not place additional fill over the peat; and

- e. The peat is air dried, with a porosity greater than 90 percent, and a particle size distribution of 92 to 100 percent passing a No. 4 sieve and less than 8 percent passing a No. 30 sieve.
- E.** Installation requirements. In addition to the applicable requirements in R18-9-A313(A), the applicant shall:
- 1. Peat module system.
 - a. Compact the bottom of all excavations for the filter modules, pump, aerator, and other components to provide adequate foundation, slope the bottom toward the discharge to minimize ponding, and ensure that the bottom is flat, and free of debris, rocks, and sharp objects. If the excavation is uneven or rocky, the applicant shall use a bed of sand or pea gravel to create an even, smooth surface;
 - b. Place the peat filter modules on a level, 6-inch deep gravel bed;
 - c. Place backfill around the modules and grade the backfill to divert surface water away from the modules;
 - d. Not place objects on or move objects over the system area that might damage the module containers or restrict airflow to the modules;
 - e. Cover gaps between modules to prevent damage to the system;
 - f. Fit each system with at least one sampling port that allows collection of wastewater at the exit from the final treatment module;
 - g. Provide the modules and other components with anti-buoyancy devices to ensure stability in the event of flooding or high water table conditions; and
 - h. Provide a mechanism for draining the filter module inlet line; or
 - 2. Peat filter bed system.
 - a. Scarify the bottom and sides of the leaching bed excavation to remove any smeared surfaces, and:
 - i. Unless directed by an installation specification consistent with this Chapter, place peat media in the excavation in 6-inch lifts; and
 - ii. Compact each lift before the next lift is added. The applicant shall take care to avoid compaction of the underlying native soil;
 - b. Lay distribution pipe in trenches cut in the compacted peat, and
 - i. Ensure that at least 3 inches of aggregate underlie the pipe to reduce clogging of holes or scouring of the peat surrounding the pipe, and
 - ii. Place peat on top of and around the sides of the pipes.
- F.** Operation and maintenance requirements. In addition to the applicable requirements in R18-9-A313(B), the permittee shall inspect the finished grade over the peat filter for proper drainage, protection from damaging loads, and root invasion of the wastewater distribution system and perform maintenance as needed.