



State of Delaware  
Department of Natural Resources & Environmental Control  
Division of Water Resources  
Ground Water Discharges Section

## Innovative and Alternative System Approval

**ISSUED TO:** ECO-PURE

Waste Water Systems  
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**FROM:** Hilary Moore – Environmental Engineer  
Ground Water Discharges Section

**FOR:** ECO-PURE Peat Moss Filter

**APPROVAL DATE:** **September 12, 2006**

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In accordance with the Regulations Governing the Design, Installation, and Operation of On-Site Wastewater Treatment and Disposal Systems (Regulations), an application dated July 3, 2006 has been submitted by ECO-PURE for the approval of the ECO-PURE 300 Series Peat Moss Biofilter as an Innovative & Alternative On-Site Wastewater Treatment Unit and Disposal System.

Based on the information submitted, the Department approves the use of the ECO-PURE Series 300 Peat Moss Biofilter as an Innovative & Alternative On-Site Wastewater Treatment Unit and Disposal System. The following conditions, limitations, and requirements must be adhered to:

### 1. Product Description

The ECO-PURE Peat Moss Biofilter is an attached growth packed bed filter, which utilizes sphagnum peat moss as its filtering media. Prior to entering a peat module, sewage first enters into a DNREC approved septic tank equipped with an

approved effluent filter. Effluent from the septic tank is then distributed by gravity, or pumped to the peat module(s) where a distribution plate located on top of the module evenly distributes the effluent over the peat bed. Effluent then percolates down through the media. Once through the media the effluent is either collected and sent to a disposal system, or directly infiltrates onto an aggregate bed.

## 2. Claim

**Approval is based on information submitted by the Manufacturer indicating the specified model will routinely provide effluent quality not exceeding 20mg/l of BOD<sub>5</sub>, 20 mg/l of TSS, and provides 99.9% fecal coliform bacteria removal.**

## 3. Approved ECO-PURE Peat Moss Biofilter Systems: (For purposes of this report a pad shall be synonymous with a bed disposal system.)

- a. ECO-PURE 300 Series Peat Moss Biofilter can be used as a closed bottom or open bottom unit. As an open bottom unit the ECO-PURE Peat Moss Biofilter may contain an outlet located at the bottom of the module(s) to allow for gravity distribution directly to a subsurface gravity disposal pad below the module.
- b. One ECO-PURE 300 Series Peat Moss Biofilter may serve 500 gallons per day.
- c. The ECO-Pure Peat Moss Biofilter may be used as a stand alone advanced treatment unit used in conjunction with a trench disposal system or drip irrigation disposal system.
- d. Other models for use may be approved by the Department on a case by case basis.

## 4. Scope of Use

The system may be used for residential waste with flows <2,500 gallons per day. Seek manufacturer's guidance on module requirements.

## 5. Siting Criteria

- a. Percolation rates are to be based on the most restrictive texture within the upper 60" of soil. See the attached chart for loading rate associated with a percolation rate.
- b. For at-grade systems, the tillage depths are to be 6-8", although slightly deeper depths may be necessary in the case of shallow thick plow pans or similar restrictive layers within 12" of the surface.
- c. Landscape position is also a necessary consideration. Systems are not to be sited within a closed depression or where water tends to pond during heavy rainfall events.

## **6. Separation Requirements**

- a. A 12” separation distance must be maintained from the limiting zone.
- b. Standard installation = 18-22” limiting zone, 6-8” pad (bed) depth, 10” trench depth.
- c. Surface installation (at-grade systems) = 12” limiting zone, pads only.

## **7. Design Criteria**

- a. The ECO-PURE Peat Moss Biofilter may be installed for new and replacement systems as disposal systems, or as an advanced treatment unit followed by a trench disposal system or drip irrigation disposal system.
- b. A septic tank must precede the ECO-PURE Peat Moss Biofilter system. The septic tank must incorporate an effluent filter as specified by the manufacturer.
- c. An on-site wastewater treatment and disposal system permit application incorporating an ECO-PURE Peat Moss Biofilter shall be designed in accordance with the Regulations, and manufacturer’s specifications. The design shall be completed by a DNREC Class C Design Engineer unless otherwise approved by the Department. The permit application shall include proper unit specifications.
- d. For new construction the attached loading rates shall be utilized to determine the pad or trench disposal system size.
- e. If a drip irrigation system is to follow the ECO-PURE Peat Moss Biofilter, their associated loading rates shall be used for disposal system sizing.
- f. The use of a pad or trench for disposal shall be based on site characteristics and the experience of the Design Engineer.
- g. No additional area reductions shall be granted for the use of water saving fixtures or for the use of graveless chambers.
- h. The manufacturer is responsible for providing the Department a list of all local distributors and their associated contact information. This list must be kept current and shall be submitted to the Department on a yearly basis.

## **8. Installation Procedures**

- a. The ECO-PURE Peat Moss Biofilter shall be installed by a DNREC Class E System Contractor under the supervision of a manufacturer’s representative, or by a DNREC Class E System

- Contractor who has been certified for unit installation. Proof of certification shall be provided in writing to the Department.
- b. Start up of the system and initial operational checks shall be conducted by the Class E System Contractor (trained by the manufacturer), Design Engineer, and a Ground Water Discharges Section (Large System Branch) representative. If the Class E System Contractor is not certified, a manufacturer's representative shall perform the operational checks of the system at start up. If the manufacturer's representative can not be on site at the time of start up, they must provide final start up approval to the Department in writing.
  - c. The aggregate to be used inside the module must meet the manufacturer's specifications.

## **9. Operation and Maintenance**

- a. The ECO-PURE Peat Moss Biofilter shall be operated and maintained in accordance with the manufacturer's specifications.
- b. The manufacturer shall comply with all Department mandated requirements as specified in permit conditions. This shall include operation and maintenance requirements.

## **10. Sampling and Approval**

The Department reserves the right to sample any unit at any time.

## **11. General Conditions**

- a. Use of the system for wastes other than residential shall be on a case by case basis.
- b. In the event that the product fails to perform as claimed by the applicant, the use of the unit for new installations shall cease. Use of the unit shall not resume until such time the applicant and the Department have reached an acceptable agreement for resolving the situations.
- c. Any changes that deviate from the specifications as submitted with this approval shall be approved by the Department prior to use.