



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

Innovative and Alternative System Approval

ISSUED TO: Delta Environmental Products
Pentair Water
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FROM: Jason Baumgartner – Environmental Scientist
Ground Water Discharges Section

FOR: ECOPOD

APPROVAL DATE: June 13, 2006

AMMENDMENT DATE: June 19, 2012 (for model update)

In accordance with the Regulations Governing the Design, Installation, and Operation of On-Site Wastewater Treatment and Disposal Systems (Regulations), an application dated May 19, 2006, was submitted by Delta Environmental for approval of the ECOPOD advanced treatment unit as an Innovative & Alternative On-Site Wastewater Treatment Unit. On June 19, 2012, a request was submitted to add an additional model for smaller flow situations.

Based on the review of the application, the Department hereby grants approval of the use of the ECOPOD advanced treatment unit as an Innovative & Alternative On-Site Wastewater Treatment Unit subject to the conditions, limitations, and requirements set forth herein:

1. Product Description

The ECOPOD unit utilizes a flow through attached growth process to achieve treatment. Raw sewage enters a primary treatment tank which provides for separation of heavy solids as well as floatable materials. Effluent from the clear layer flows into a reactor chamber that houses an engineered plastic media to treat the wastewater. The media insert is completely submerged and provides the fixed surface to support the biomass. An aeration system provides for oxygenation of the effluent with wastewater in the reactor chamber. The aeration system is positioned just below the media and creates a flow pattern up through the media. Effluent from the primary treatment zone and enters the reactor chamber above the media.

The aeration system provides enough air to recirculate the water continuously through the reactor where it is further treated. .

2. Claim

Approval is based on information submitted by the Manufacturer indicating the specified model will routinely provide effluent quality not exceeding 30 mg/l of BOD₅, 30 mg/l of TSS, and 20 mg/l of Total Nitrogen (TN) assuming influent loading does not exceed the treatment capabilities of the units.

This unit has completed the NSF 40 and NSF Nitrogen Reduction Testing.

4. ECOPOD Unit Specifications

Treatment Plant	Treatment Capacity (gpd)	Primary Tank Total Volume (gal)	Reactor Tank Volume (gal)	Reactor Tank Dilution Volume (gal)	Media Size	Air Requirements
E25	375	375	525	465	2'x2'x2'	5 cfm
E50	500	500	700	580	2'x2'x4'	12 cfm
E60	600	600	840	736	3'x2'x4'	14.4 cfm
E75	750	750	1050	870	3'x2'x4'	18 cfm
E100	1000	1000	1400	1160	4'x2'x4'	24 cfm
E150	1500	1500	2100	1740	6'x2'x4'	36 cfm

*** All tanks must be DNREC approved. If concrete tanks are to be utilized they must be top seam. Unit may be installed as utilizing one septic tank or utilization a combination of two.**

3. Use and Design Criteria

- a. The ECOPOD unit may be installed for new and replacement systems with conventional and innovative and alternative disposal systems.
- b. The ECOPOD unit may only be installed in DNREC approved septic tanks.
- c. An on-site wastewater treatment and disposal system permit application incorporating an ECOPOD unit 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. The designer must assure that the primary treatment compartment (tank) and treatment compartment (tank) have above grade access. The media shall also have above grade access. The design also must ensure that the control panel and blower are accessible.
- e. The ECOPOD unit shall not be installed within areas subject to traffic loads unless specially designed on a case by case basis in accordance with the Regulations.
- f. 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.

4. Installation Procedures

- a. The ECOPOD unit 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. The blower must be installed utilizing factory base and enclosure and located no more than 100 feet from unit.
- c. 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.

5. Operation and Maintenance

- a. The ECOPOD shall be operated and maintained in accordance with the manufacturer's specifications.
- b. The manufacturer or manufacturer's representative shall comply with all Department mandated requirements as specified in permit conditions. This shall include operation and maintenance requirements.

6. Sampling and Approval

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

7. General Conditions

- a. Use of the system for wastes other than residential shall be on a case by case.
- b. In the event that the product fails to perform as claimed by the applicant, and it is found that the system is installed and working as designed, and there is not toxicity in the waste; the use of the units for new installations shall cease. Use of the units 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.