MEMORANDUM

TO: Environmental Health Managers
District Health Directors
Office of Environmental Health Services staff
AOSE/PEs and other stakeholders

FROM: Karen Remley, M.D., M.B.A.
State Health Commissioner

DATE: April 9, 2008

RE: Experimental approval for the Eco-pure system
Guidance Memoranda and Policies (GMP) #145

Rescinded 5/15/2009

The Eco-pure system uses a peat moss for treatment and is manufactured by Eco-pure Waste Water Systems, a company located in Fort Myers, Florida. Eco-pure Waste Water Systems requested experimental approval for their wastewater treatment system so it could demonstrate the system's efficacy when designed and installed with certain waivers and variances from the 2000 *Sewage Handling and Disposal Regulations*.[1]

The Division of Onsite Sewage and Water Services (DOSWS) completed a detailed review of the manufacturer's product, its claims, and the probable efficacy of its product when designed and used in accordance with the manufacturer's recommendations. DOSWS recommended that I grant an experimental approval for the system and this policy approves the system for experimental use and also establishes the protocol for the experimental testing procedure.

While every attempt has been made to eliminate possible elements of confusion about the waivers and variances granted to this proprietary product, new questions or concerns may arise over time. Stakeholders are advised to contact, Donald J. Alexander, Director, Division of Onsite Sewage and Water Services (DOSWS) at 109 Governor Street, 5th Floor, Richmond Virginia 23219, (804) 864-7452 to discuss any additional points of confusion about this product's experimental approval.

[1] See Section 441 et. seq. of the 2000 *Regulations* for a detailed explanation of experimental approval, the testing requirements, and the methodologies used to evaluate new technologies in Virginia.

Ecoflo® Treatment and Dispersal System
GMP #118A
April 9, 2008

I. System Description

The Ecoflo® Treatment System for which this approval has been granted, consists of the key components described in general below and described in detail in Appendix I and II. Except where a specific waiver to the *Sewage Handling and Disposal Regulations* (hereinafter the *Regulations*) has been granted, the site criteria, design, installation, inspection, and operation of the components comprising the Ecoflo® Treatment System shall comply with the intent, objectives and requirements of the *Regulations.* The substitution of equivalent components is specifically prohibited.

A. Building Sewer. The building sewer used in conjunction with an Ecoflo®. system shall comply with Part IV, Article 2 of the *Regulations.*

B. Pretreatment system. The minimum pretreatment system preceding an Ecoflo®. system shall be a septic tank designed and installed in compliance with Part IV, Article 3 of the Sewage Handling and Disposal Regulations but having a holding capacity of not less than 1,000 gallons. An EFT–080 effluent filter manufactured by Premier Tech Environment shall be installed in the septic tank outlet structure. An access riser extending to the finished grade shall be provided over the outlet.

C. Treatment System. The Ecoflo® ST-650 (open bottom fiberglass module), STB-650 (closed bottom fiberglass module, STB-B/BR (concrete low height H1 or medium height H2) wastewater treatment systems manufactured by Premier Tech Environment (PTE) authorized for use in this policy consists of the specific components described in this section and Appendix I. This policy applies only to the product as specified herein. Equivalent components may not be substituted. (Note: Please refer to Appendix 2 – Ecoflo® Biofilters and Accessories, for a detailed list of components with model numbers. Also see the installation guides for the fiberglass, concrete models and pumping stations for complete details on the various models and components.)

The Ecoflo®. Treatment System consists of a treatment module containing a proprietary biofibrous media, capable of treating design flows of 600 GPD (i.e., up to 4 bedrooms). Systems designed for 5 and 6 bedrooms require two (2) treatment modules. When two units are used, flow shall be divided uniformly between the two units in accordance with the manufacturer's design manual.

Fiberglass treatment modules are made of pre-assembled, UV-protected fiberglass and polyester resin composite material. The modules are fitted with UV-protected, removable polyethylene lids, which contain ventilation. Each unit is installed level, with effluent flow uniformly split between both sides of the filter bed by means of a tipping bucket.

> **Open bottom:** This model of the Ecoflo® is to be used on sites where there are suitable soil conditions for a depth below the bottom of gravel pad under the treatment module. The fiberglass Ecoflo® Model ST-650, utilizes a subsurface gravity final treatment and disposal system or pad beneath the unit.
>
> **Closed bottom:** These models are used as a stand alone pretreatment system in conjunction with a separate gravity or pressure dosed subsurface disposal system.

Pre-cast concrete treatment modules are made of pre-assembled, reinforced concrete. The models are fitted with UV-protected, removable polyethylene main access lids, which contain ventilation. The modules contain a funnel access allowing air circulation between the top and bottom of the filtering media, access to effluent outlet, and for sampling of treated effluent and pump installation

Rejected
3/13/2009

The concrete models of the Ecoflo® are comprised of two pieces; the bottom and sides, and the top with access lids poured into the mold. The model should be installed so that the highest seasonal groundwater table is 3 inches (or more) below the lid joint. The joint between the tank and lid must be watertight.

D. Pumping (to treatment system). When a pumping unit is required, the pumping system shall be designed to deliver a net dosing volume of 10 to 15 gallons per treatment system unit per dosing cycle, at a pumping rate of 5 to 7 gpm per module. Drain back volumes shall be factored into the design where applicable. Appendix I presents the characteristics of the proprietary pump chamber PSA-240 used to dose the Ecoflo® Biofilter.

E. Conveyance System. The effluent conveyance components are designed to move effluent from the Ecoflo® to an absorption area. The three modes of conveyance are:

1. Gravity, (including siphons)
2. Pumping to gravity distribution, and
3. Pumping to pressure distribution.

Effluent may be discharged to the dispersal area by:

1. Gravity in accordance with 12 VAC 5-610-870, or
2. By means of a discharge pump in a proprietary pre-engineered pump basin listed in Appendix II, or
3. Using a PTE approved discharge tank where the pump characteristics, drawdown, and discharge rates are specified by PTE.

F. Absorption Area. The absorption area consists of the infiltrative surface where effluent is applied and the native or fill soil between the trenches or drip tubing. Any method of effluent application may be utilized provided it is approved by the Department and authorized by the manufacturer.

II. Waivers

A. Scope. The following waivers to the *Regulations* are granted for facilities generating residential strength wastewater that have a design flow not exceeding 1,000 gallons per day.

For the purposes of this policy, "Residential strength wastewater" means sewage generated by residential uses, not containing industrial influent or storm water and having no other toxic, hazardous, or constituents not routinely found in residential wastewater flows, or as certified by a professional engineer. Certification by a professional engineer shall consider the wastewater strength as well as peak and average daily flows. The results of the analysis submitted with the permit application shall include a finding of the equivalent number of bedrooms on which to base the design.

B. Trench width. 12 VAC 5-610-950 E.2, limits absorption trenches to widths between 18 inches and 36 inches. This section is waived to allow the use of absorption pads. For the purposes of this policy, a pad is defined as an absorption area wider than 3 feet but not longer than 100 feet. Absorption pads may be used under the following conditions:

1. A system may contain one or more pads.
2. The combined area of all pads in a system may not exceed 1,200 square feet.
3. Pads and trenches may not be used together in a single system.
4. Pads shall be limited to sites with slopes of 10% or less.

C. Minimum Installation Depth. 12 VAC 5-610-596 C.1, which limits the installation of trenches shallower than 12 inches to Texture Group I and II soils is waived for slopes up to 15%[2]. The infiltrative surface (i.e., the bottom of the pad or trench) shall be installed at grade or deeper on naturally occurring

[2] This means that for slopes up to 15% there are no soil texture group limitations for shallow placed systems.

Rescinded 5/13/2008

undisturbed soil. No fill material shall occur beneath the infiltrative surface. On sloping sites the installation depth shall be measured on the downhill side of the trench or pad.

D. Minimum Cross Section Dimensions 12 VAC 5-610-950.E.1 is waived. This section establishes how sidewall depth is measured and requires increases in the installation depth of trenches as the slope of the site increases. By waiving §950.E.1 absorption systems designed under this policy may be installed at grade even on steeper slopes. No distinction is made between pads and trenches. Section 12 VAC 5-610-950.F, which increases the lateral separation distance between trenches as the slope of the site increases, is not waived.

Designers are encouraged to use a conservative approach when designing shallow placed systems on sloping sites to prevent effluent from breaking out at the contact between the original soil surface and the fill interface.

E. Loading rates. Table 5.4 of the *Regulations* and 12 VAC 5-610-950 D, which establish loading rates for subsurface soil absorption systems, are waived. Systems designed pursuant to this policy shall use Table 2 contained herein to determine the maximum acceptable loading rates. Designers are authorized to use lower loading rates.

F. Pump system designs.

1. Pumps Integral to Treatment Systems. Pumps integral to the treatment system are pumps that move sewage or effluent from the house or pretreatment system to the treatment system and/or pumps that move effluent within the treatment system. The *Regulations* do not specifically address pumps used for purposes other than conveying effluent to a dispersal system. 12 VAC 5-610-880 is waived in its entirety for pumps, pump chambers, and appurtenances integral to treatment systems.

2. Conveyance Pumps. The pump requirements contained in 12 VAC 5-610-880 subsections A.1, B.1, B.6, and B.7 are waived. Pump systems designed in accordance with these sections of the *Regulations* are not appropriate for systems dispersing treated effluent to a reduced size absorption area. Therefore, the use of the pump design criteria in subsections B.1, B.6 and B.7 in the *Regulations* is expressly prohibited except when the sizing criteria in Table 5.4 of the *Regulations* are used[3]. Consequently, only pump systems recommended by the manufacturer and approved by the Division of Onsite Sewage and Water Services (herein after, the Division) may be used in accordance with this GMP.

3. Division approved pump systems appropriate for use with this manufacturer's system are either described in this policy or may posted as an addendum to this policy on the Division's website.

G. Separation distances to water table. The separation distances between the infiltrative surface of a soil absorption system and a water table as shown in Table 4.3 of the *Regulations* are waived in lieu of Table 1 of this policy.

Table 1

Separation Distance between Infiltrative Surface of Soil Absorption System and Water Table	
Percolation Rate	Separation Distance
1-25	6 inches
26-37	8 inches
38-49	10 inches
50-120	12 inches

[3] The requirement in subsection A.1 for a velocity of two feet per second to achieve scouring, while not necessarily needed for treated wastewater, may be used at the discretion of the designer.

Rescinded 5/15/2009

H. Separation distance to impervious strata for shallow placed systems. An impervious stratum is defined as a soil feature that has a measured or estimated percolation rate in excess of 120 minutes per inch. For the purposes of this policy impervious strata include but are not limited to bedrock, pans, restrictions, or shrink-swell soil. The separation distance to these features for a shallow placed system is shown in Table 4.3 of the *Regulations*, with the exception of the separation distance to water table. Table 1 of this policy provides the minimum separation distance to a water table.

The separation distance to an impervious strata may be reduced from 18 inches to a distance not less than 12 inches below the trench bottom when a professional engineer certifies in writing that they have evaluated the hydraulic capacity of the site to disperse wastewater and that in their professional opinion, water mounding will not encroach on the separation distance required in Table 1 above[4].

I. Plans and Specifications. When plans conform to requirements of GMP #125, the requirement for formal plans and specification required in 12 VAC 5-610-250.C is waived. Typical treatment system drawings and specifications are shown in Appendices I and II respectively. When used in conjunction with a permit sketch, site specific specifications, and manufacturer installation criteria, these documents will normally be sufficient to assure a system can be properly installed. In some instances where a complex system is encountered, formal plans and specifications may be required. This determination is left to the discretion of the District Health Department.

GMP #125 is intended to provide additional guidance and consistency when a professional engineer is required. Nothing contained herein is intended to contradict GMP #125. Whether or not to require a professional engineer for timed dosing has been a point of confusion. Timed dosing to a gravity flow distribution box does not necessarily require a design prepared by a professional engineer when the conditions described in GMP #125 (and briefly described below) are met.

The design of pumping systems for the purpose of transporting the wastewater from the treatment device described by this policy, to the location of the soil based treatment system, does not necessarily require a design by a professional engineer provided:

1. The design involves elevations that are generally level or constantly ascending, and
2. The discharge end is open and not pressurized, and
3. The design does not involve pumping downhill, and
4. The design does not exceed 50 feet of static head and/or 500 feet of force main length.

Note: When timed dosing or enhanced flow is applied to a treatment device that is located directly above an absorption pad, the designer may assume that the effluent is delivered in the same manner to the pad that it was applied to the treatment device.

J. The depth of gravel specified in 12 VAC 5-610-930.E is not waived (nor has it ever been waived). All trenches and pads, which use aggregate, shall be designed using 6 inches of gravel (or other approved aggregate) under gravity percolation lines and 2 inches over the line. For LPD (low pressure distribution) systems 8.5" of aggregate is required under the pipe and 2" over the pipe.

III. Siting Criteria

This policy authorizes the use of sites that meets one of the following classifications:

1. Any site that fully complies with the criteria contained in the *Regulations*, including, but not limited to, absorption area, sizing percolation rate, landscape position, stand-off distances, and set-back distances. This includes sites that comply with the *Regulations*, whether or not secondary effluent is required.

[4] This requirement is for a written certification, signed, sealed and dated by a professional engineer licensed in Virginia. This requirement does not mandate the submission of calculations used to make this determination.

Rescinded 7/1/2008

2. Any site that does not fully comply with the criteria contained in the *Regulations* where a waiver to the non-conforming condition or conditions has been granted in this policy.
3. Repair permits that fully comply with this policy are considered to meet the intent of 12 VAC 5-610-280 C.2. Repair permits that do not fully comply with the siting criteria contained in this policy or the *Regulations* must use Table 5.4 in the *Regulations* in order to comply with Section 280 C.2.

IV. Design Criteria

All portions of the system shall be designed to provide wastewater treatment and disposal, which is equal or superior to that obtained with a conventional gravity drainfield system. In general, the system must provide primary treatment, followed by additional wastewater treatment to produce an average BOD_5 of 10 mg/l, and effluent distribution and application to soils capable of providing sufficient additional treatment to render the wastewater harmless to humans and the environment.

A. Absorption Area Design. The absorption area may consist of any dispersal method approved by the department and authorized for use by the manufacturer. Should a conflict exist between a manufacturer's design criteria and the *Regulations* or this policy, the Department's criteria shall take precedent.

The absorption area determined to be necessary under this policy may be achieved by use of either an absorption pad or absorption trenches, provided:

1. The minimum standoff distance to water table, or other limiting factor, is achieved under the entire absorption area. This assures that at least the minimum requirement for suitable soil exists between all parts of the infiltrative surface and the underlying limiting factor.
2. The absorption area, (either pads or trenches) is installed on contour. When a pad system is designed the longest dimension of the pad shall be along the contour. Contour means that the longitudinal axis of the pad follows the contour of the site within 4 inches (i.e., +/-2"). Pads are considered marginally sufficient to achieve hydraulic dispersal of the effluent. Every effort *should* be made to minimize the linear loading rate, particularly when using a pad design.
3. When a pad is utilized, the bottom pad area shall be installed level while maintaining at least the minimum required separation distances to all soil limiting factors.
4. No portion of the pad bottom area may be installed on fill material.
5. The system shall be designed to provide equal flow, within 10 percent, throughout all portions of the absorption area. Distribution of effluent by gravity or pressure dosing (before or after the treatment system) is acceptable.
6. When designing a drip dispersal system the designer may use the loading rate shown for either the two or the three foot wide trenches shown in Table 2. To determine the area needed, divide the daily peak wastewater flow in gallons by the loading rate (GPD/sq. ft.) selected from Table 2. Multiply this result by three to determine minimum footprint area in square feet. The drip dispersal design guidance in GMP #107 applies to the design of the drip field. Where slopes and/or restrictive horizons are a consideration, the Absorption Area Increase Table in GMP #107 shall be followed.
7. When a pad is proposed for use within 20' up slope or down slope from another proposed or actual absorption system, the Department shall require a professional engineer to certify that the upslope system will not adversely impact the down slope system.

B. Area Requirements and Calculations. The absorption area shall be sized in accordance with Table 2 of this document. A larger area may be specified by the designer.

1. The minimum absorption area shall be 320 square feet.

2. No additional area reduction shall be permitted for the use of water saving fixtures.

C. Distribution.

Restricted Use

1. All absorption trenches shall use parallel distribution (i.e., either a distribution box or pressure distribution).

2. Distribution to the absorption area may be accomplished by gravity flow to an underlying pad or a distribution box, or under positive pressure to a manifold. In any case, effluent shall be applied proportionally to the absorption area as described in Part IV A (Field Design) above.

D. Depth. The infiltrative surface that comprises the absorption area may be installed at grade. On sloping sites this shall be measured on the downhill side of the installation (i.e., no fill material may be placed below the absorption system).

E. Cover material shall be provided from the top edge of the absorption system horizontally in all directions to existing grade and shall cover the top and side of the absorption area, which may be exposed during construction. The designer shall include sufficient cover in the system design to prevent freezing. In no case shall the depth of cover be less than four inches (note: in some areas of the state this may be insufficient to provide frost protection). The finished slope of the cover material shall not exceed 1:4 (rise:run) and a slope of 1:6 or shallower is preferred.

Rescinded 5/15/08

Table 2
Hydraulic Loading Rates for Absorption Systems Designed Under this Policy

Percolation Rate (Minutes/Inch)	Gallons Per Day Per Square Foot of Horizontal Surface			
		Trenches		
	Pads	1.5 wide	2.0 wide	3.0 wide
20 or less	1.66	2.78	2.5	2.22
25	1.33	2.22	2.00	1.78
30	1.11	1.85	1.66	1.48
35	0.95	1.59	1.43	1.27
40	0.83	1.39	1.25	1.11
45	0.74	1.23	1.11	0.99
50	0.67	1.11	1.00	0.89
55	0.61	1.01	0.91	0.81
60	0.55	0.93	0.83	0.74
65	0.51	0.85	0.77	0.68
70	0.48	0.80	0.72	0.64
75	0.44	0.74	0.67	0.59
80	0.42	0.69	0.63	0.56
85	0.39	0.65	0.59	0.52
90	0.37	0.62	0.56	0.49
95	0.35	0.58	0.53	0.47
100	0.33	0.56	0.50	0.44
105	0.32	0.53	0.48	0.42
110	0.30	0.51	0.45	0.40
115	0.29	0.48	0.43	0.39
120	0.28	0.46	0.42	0.37

Note: For drip dispersal sizing requirements see item A.6 under Section IV Field Design (above).

V. Installation

A. No contractor shall install a system in Virginia authorized under this policy unless they are first trained and certified by the manufacturer as having passed their minimum training qualifications. The manufacturer shall maintain a current list of qualified installers and shall make the list available to the Virginia Department of Health (herein after VDH) through its website or by other appropriate means.

B. The manufacturer shall ensure that only certified and trained contractors install their proprietary systems according to manufacturer approved procedures.

C. VDH may approve a properly installed system if the only defect is that the contractor who installed it was not certified by the manufacturer. If a manufacturer fails to adequately enforce this provision, such failure may be grounds to terminate the manufacturer's authorization pursuant to this policy.

D. The manufacturer's recommendations shall be followed for system startup.

E. All mechanical components, pumps, pump cycling, filters, systems must be demonstrated to be fully operational in accordance with their design.

VI. Operation and Maintenance

Routine maintenance is essential for proper operation of the system. Failure to maintain a system ***will*** result in increased public health and environmental risks. After July 1, 2009 all systems permitted pursuant to this policy will be required to have operation and maintenance provided by a licensed wastewater system operator for the life of their system. Prior to July 1, 2009, VDH strongly urges all system owners to assure operation and maintenance is provided in accordance with the manufacturers recommendations.

All system owners shall be provided with written and oral instructions on the proper operation and maintenance of their system. Providing system owners with updates, revisions and other changes to this section is the responsibility of the manufacturer. Copies of changes shall be submitted to the VDH on an informational basis. Nothing in this approval is intended to prevent or restrict the development of instructional materials for public use. No prior approval of such literature is required provided the literature contains no endorsements, approvals, or suggestions that VDH in any manner promotes the use of one system above any other.

VII. Responsibilities and Permitting Procedures

A. Permitting shall be done by the local health department based on a satisfactory site evaluation and review of plans and specifications prepared in accordance with all applicable state regulations and policies and any relevant local ordinances.[5] Systems permitted under this policy are Type III systems (see 12 VAC 5-610-250.C); however, the process for issuing permits under this policy shall be handled in the manner described for Type II systems (see 12 VAC 5-610-250.B).

B. The local health department shall attach a copy of this policy to all construction permits granted pursuant to this policy.

C. Construction permits (i.e., not operation permits) are valid for a period of 18 months. Upon successful completion of the provisional protocol, unused construction permits will be treated as conventional construction permits and may be renewed upon expiration. In the event that the system fails the provisional protocol, unused permits will not be renewed. Permits shall note the provisional or experimental nature of the system and that they cannot be converted to a certification letter. Upon successful completion of the provisional protocol, the holder of a valid provisional permit may convert the same to either a conventional construction permit or a certification letter.

D. Permits issued for the system authorized by this policy prior to the effective date of this policy shall continue to be valid until such time as the permit is installed or expires 18 months after the date of issuance. Expired permits shall be reissued upon receipt of a proper application filed in accordance with the established requirements of VDH and shall conform with current policy to the greatest extent practical.

Rescinded
7/1/2009

[5] Either a Level 1 or a Level 2 review of work submitted by an AOSE/PE shall constitute compliance with state regulations and policies.

E. The manufacturer shall be responsible for providing up to six classes (up to 50 students each) during the first six months after this approval is granted and two classes annually thereafter. The training shall include a manual covering proper siting, sizing, construction, and installation and inspection processes for the system described in Section I. All training materials, the course syllabus and training locations shall be reviewed and approved by the Division prior to training occurring.

F. The manufacturer shall maintain an accurate and up-to-date web-based listing of authorized installers and approved process and pump tanks.

G. Should the system described in Section I fail to perform to the satisfaction of VDH during either the experimental or provisional evaluation periods, VDH may rescind or modify this approval. Prior to taking such action, VDH shall notify the manufacturer of the nature of the problem and of the action it intends to take. The actual status of the approval appears in Appendix III.

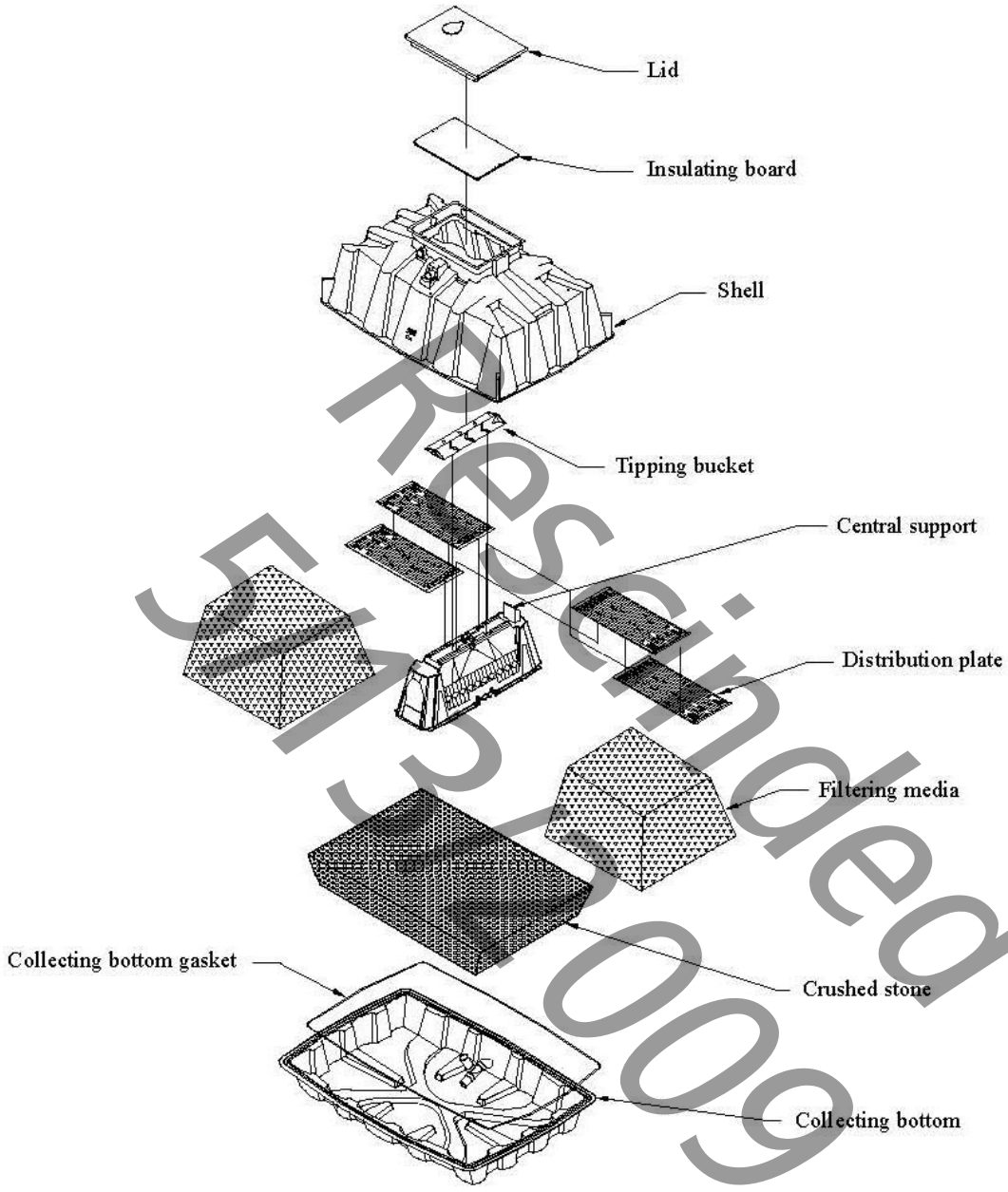
VIII. Monitoring

Monitoring is required for the duration of any experimental or provisional approval. Until such time as general approval is granted in writing, the manufacturer shall maintain a log of all systems installed. This log shall include the following minimum information: System location (by tax map, gpin, or permit number) owner's name, county, and soil conditions where the system was installed, and all associated physical, biological and chemical data if the system is one being monitored. This log shall be reported to to the Division of Onsite Sewage and Water Services on a quarterly basis and shall be provided by the 15th of the month following the end of the quarter. The log shall be available to the Division within 5 business days upon request.

Rescinded 6/13/2009

Appendix I
System Drawings

Rescinded
5/13/2009



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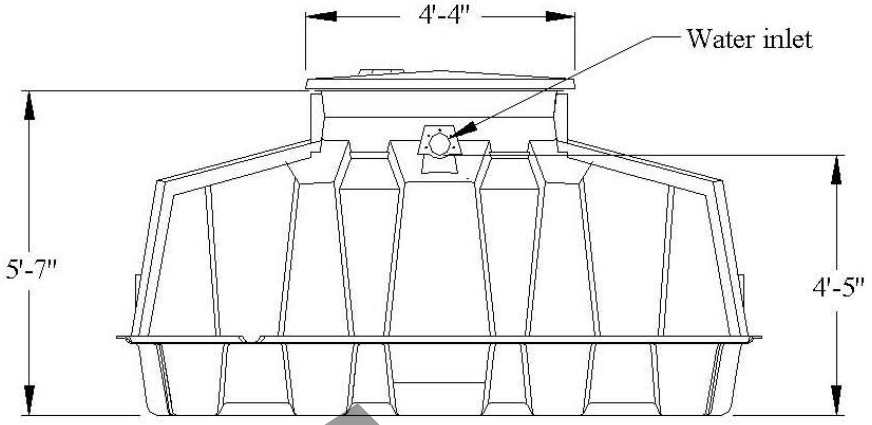
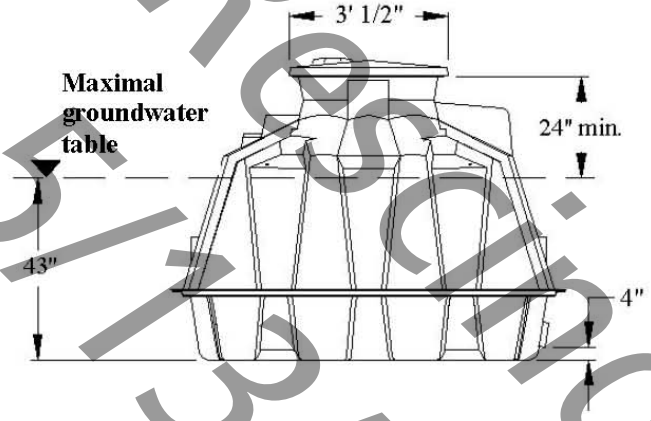
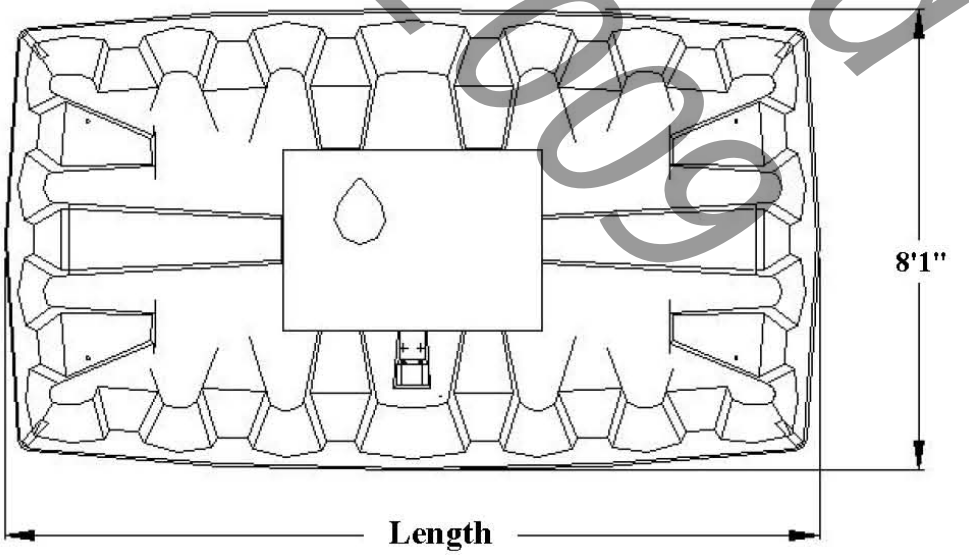
5/15/2009







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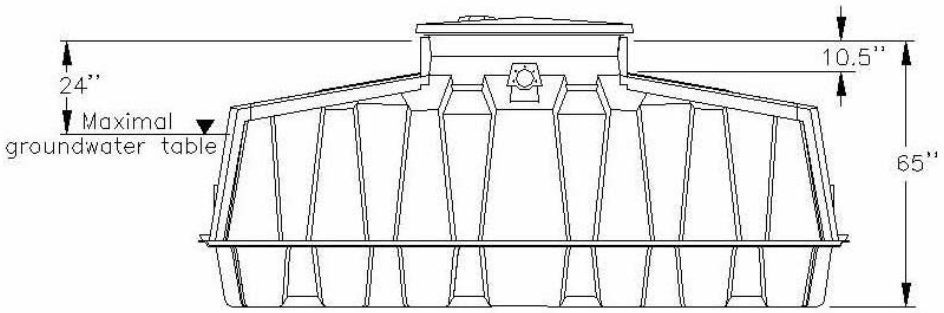
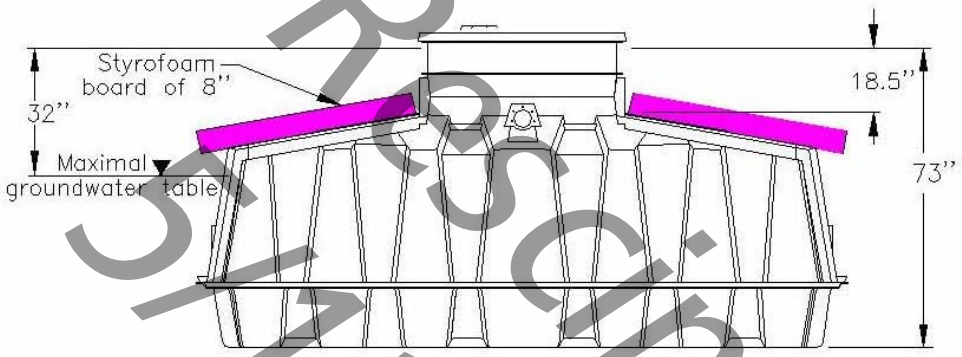
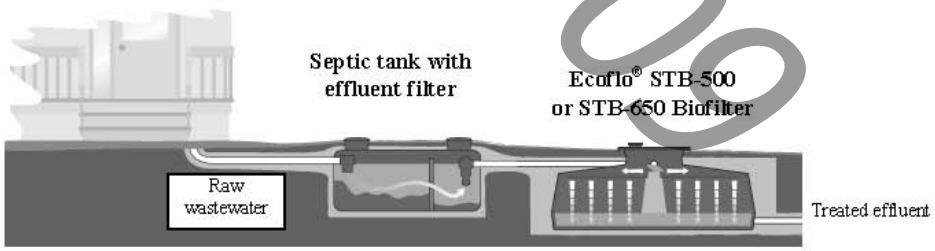


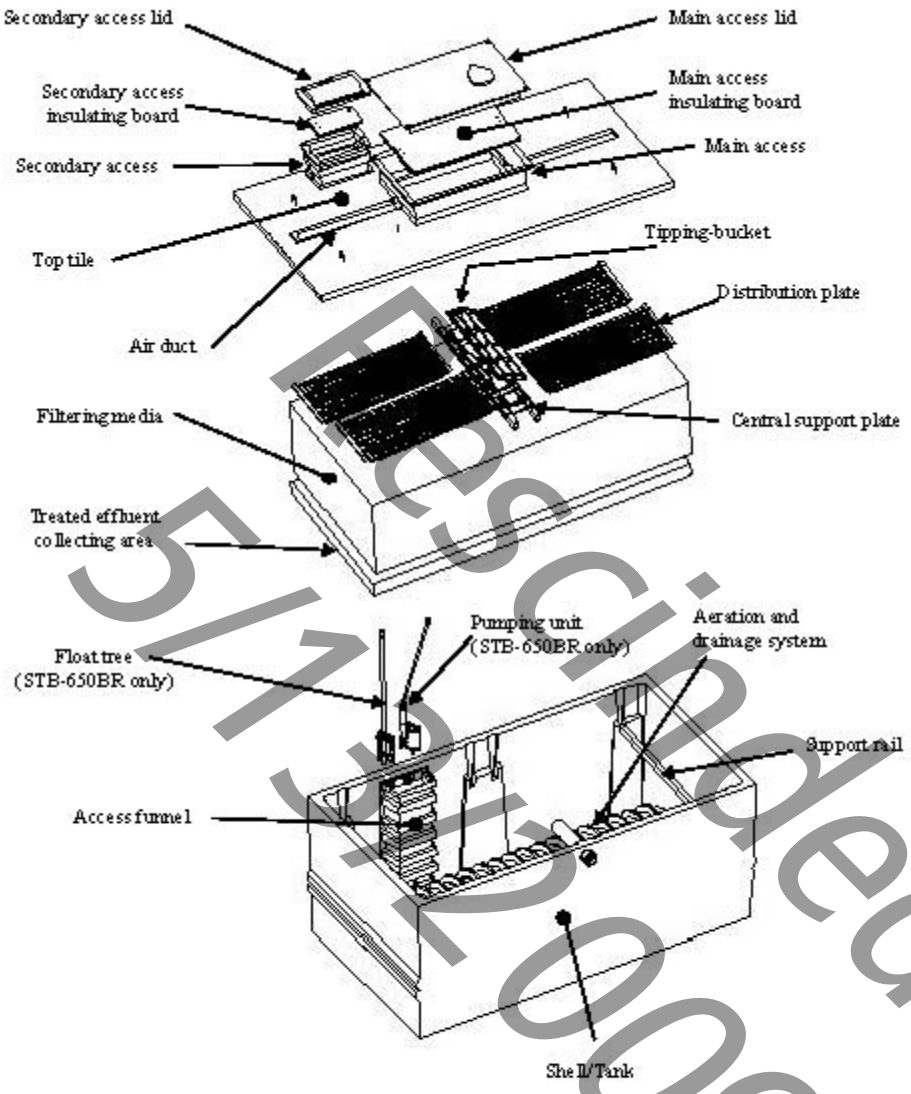
Depth of placement of STB Ecoflo® Biofilter without riser



Depth of placement of STB Ecoflo® Biofilter with one 8 inch riser

Rescinded
5/13/2009





Exploded view of the system

Rescinded 5/15/2009

Appendix II
EcoFlo Treatment and Dispersal System Components

Rescinded
5/13/2009

Description	Model Number
Pretreatment	
Septic Tank Effluent Filter	Model EFT-080
Optional filter container	Model TLF-240
Septic Tank Access Adapter/Lid	Model TAD-240 / Model LID-240
Ecoflo® Biofilter	
Open-bottom Fiberglass Ecoflo®	Model ST-650
Closed-bottom Fiberglass Ecoflo®	Model STB-650
Closed-bottom Concrete Ecoflo® Low Height (H1) with gravity discharge	Model STB-650B (H1)
Closed-bottom Concrete Ecoflo® Medium Height (H2) with gravity discharge	Model STB-650B (H2)
Closed-bottom Concrete Ecoflo® Medium Height (H2) with integrated pump for discharge	Model STB-650BR (H2)
Access Riser for closed-bottom Fiberglass Ecoflo®	Model STR-080F
Access Riser for closed-bottom Concrete Ecoflo® (main and secondary access)	Models STR-080 and STR-080SP
Pumping Station	
Pumping septic tank effluent (before Ecoflo®) including pump, float assembly, 1.5'' diameter discharge assembly, junction box and alarm panel	Model PSA-240
Pumping treated effluent (on demand) including pump, float assembly, 1.5'' diameter discharge assembly, junction box and alarm panel	Model PSA-240L
Pumping treated effluent (time-dosed system) including pump, float assembly, 1.5'' diameter discharge assembly, junction box and control panel	Model PSA-240Lt
Optional Riser 6''	Model PSR-060
Optional Riser 14''	Model PSR-140
Timed Dosing Units	Model TPA-300
Flow divider	
Pressurized Flow Divider (2 outlets)	Model PFS-200R
Pressurized Flow Divider (3 outlets)	Model PFS-300R
Pressurized Flow Dividers (2 to 10 outlets for commercial application)	Model PFS-200C to PFS-1000C

Rescinded 8/1/2019

Appendix III

System Status				
	Texture Group			
	I	II	III	IV
AdvanTex®	Provisional	General	General	General
Bio-COIR™	Experimental	Experimental	Experimental	Experimental
Ecoflo®	General	General	General	Provisional
Eco-Pure®	Experimental	Experimental	Experimental	Experimental
Puraflo®	General	General	General	General

Applicants interested in what the terms "experimental," "provisional," and "general" mean relative to a sewage system's status should review sections 12 VAC 5-610-441 through 12 VAC 5-610-444 of the *Regulations*.

Rescinded 5/13/2009

Appendix III System Status				
	Texture Group			
	I	II	III	IV
AdvanTex®	Provisional	General	General	General
Bio-COIR™	Experimental	Experimental	Experimental	Experimental
Ecoflo®	General	General	General	Provisional
Eco-Pure®	Experimental	Experimental	Experimental	Experimental
Puraflo®	General	General	General	General

Applicants interested in what the terms “experimental,” “provisional,” and “general” mean relative to a sewage system’s status should review sections 12 VAC 5-610-441 through 12 VAC 5-610-444 of the Sewage Handling and Disposal Regulations.

Rescinded 5/13/2009

FAQ 112A, 114A, 118A, 144, and 145.

1. How should VDH should handle previously approved subdivisions, certification letters, or expired permits involving pads on slopes exceeding 10%.

Answer. Follow the grandfather clause in the *Regulations*. The new permit should comply with the *Regulations* to the greatest extend possible and if VDH is asked to renew a permit on a slope >10%, staff should reissue the permit following the grandfather clause.

2. Are pads required to comply with the center-to-center spacing requirements contained in the Regulations?

Answer. No.

3. Please clarify how site evaluators (AOSEs and EHSs) are to implement the separation distance to impervious strata for shallow-placed systems.

Answer. Table 4.3 indicates that the separation distance to bedrock is 18 inches and the footnote refers to Section 12VAC 5-610 -596.C.2 of the regulations. Section 12VAC 5-610 -596.C.2 states that to assure adequate hydraulic dispersal capacity, bedrock and impervious strata may not occur within 18 inches of the trench bottom. The intent of this section is to prevent failures caused by an inadequate offset to impervious strata.

Some site evaluators have incorrectly assumed all bedrock and Cr soil horizons are impervious. The regulations do not specify the offset to pervious rock strata. This issue was raised in 2000 when the Sewage Handling and Disposal Regulations were enacted. VDH determined that the offset to pervious rock strata, including pervious bedrock and pervious Cr horizons, is 12". This is reflected in training materials and charts provided during training courses at the time the regulations were enacted.

In summary, the offset to pervious bedrock or pervious Cr horizons for shallow- placed systems is 12". The offset to impervious strata for shallow-placed systems is 18". When performing soil evaluations, it is important that all site evaluators describe the transmissivity of bedrock and Cr horizons as either pervious or impervious.

4. GMPs 112.A, 114.A, 118.A, 144, and 145 contain a waiver, granted by the commissioner, to the separation distance to impervious strata. This waiver allows the separation distance to be reduced from 18 inches to a distance not less than 12 inches when a professional engineer certifies in writing that they have evaluated the hydraulic capacity of the site to disperse wastewater. The professional engineer must indicate that in their professional opinion, water mounding will not encroach on the separation required between the infiltrative surface of the soil absorption system and water table. Am I correct in assuming the engineer must run hydraulic conductivity tests and submit mounding calculations to support their conclusion that the separation distance require will be met?

Answer. No. The method the engineer uses to make this determination is not specified in the policy, thus allowing each engineer to make this determination using their best professional judgment on a case by case basis. All that is required is a written statement from the professional engineer stating: they have evaluated the hydraulic capacity of the site to disperse wastewater and that in their professional opinion; water mounding will not encroach on the separation distance required in the relevant table (the table number varies among the GMPs).

Rescinded 5/13/08

5. GMPs 144 and 145 are experimental. The backup and bonding requirements were not waived. How should field staff handle issuing permits and complying with these requirements?

Answer. The short answer is neither of these requirements should be an impediment to issuing a permit for these specific systems. Bonding is not required. A reserve area is required; systems approved via GMP 112A, 114A or 118A may be specified as the back-up. A detailed answer follows.

The site conditions required for either a GMP #144 or #145 system are identical to those required for GMP #112A, #114A, and #118A systems. Any of these systems that have been granted General Approval would therefore be suitable for use as a backup system. Bonding is only one of a variety of financial assurances that may be used. Given the performance history of the three systems with General Approval the Department felt that in general, bonding would be a barrier to the implementation and use of these systems and would be inconsistent with 12 VAC 5-610-441.A 1 that states the policy of the division is to encourage the development of mew methods, processes, and equipment…for the treatment and disposal of sewage;" While that section was not explicitly waived (and may be appropriate in some situations) the Department believes the cost of the systems is generally consistent with connection to a public sewerage system and not warranted in most instances. In short, the value of the property and interests of the homeowner to protect the value of their property are sufficient to assure that repairs on these systems will be made, in those instances where it becomes necessary to make a repair.

Rescinded 5/13/2009