NORTH CAROLINA DEPARTMENT OF HEALTH AND HUMAN SERVICES
DIVISION OF PUBLIC HEALTH
ENVIRONMENTAL HEALTH SECTION
ON-SITE WATER PROTECTION BRANCH

INNOVATIVE WASTEWATER SYSTEM APPROVAL

Innovative Wastewater System Approval Number: IWWS 2000-03-R5

Issued To:	Premier Tech Water and Environment Ltd 1 avenue Premier Riviere-du-Loup, Quebec G5R 6C1 www.premiertechaqua.com/en-us
Contact:	Marie-Christine Belanger 418-867-8883
For:	Ecoflo® Peat-based Biofilter System Models ST-650, STB-650, STB-650B, and STB-500

Approval Date:	December 4, 2000	
	January 29, 2001	Minor revision November 5, 2001
	April 8, 2003	Revised siting, sizing, design, installation and monitoring criteria
	September 2, 2003	Addition of Models ST-500 and STB-500
	November 16, 2007	Rule .1970 Revisions, concrete tank Model STB-650B (H1), and revised design and monitoring criteria
	December 31, 2024	Updated for 18E and renewed for 2025
	December 31, 2025	Renewed for 2026

In accordance with G.S. 130A-343 and 15A NCAC 18E Section .1700, an application by Premier Tech Water and Environment Ltd for a renewal of the approval for their advanced pretreatment system, Ecoflo® Peat-based Biofilter System, has been reviewed and found to meet the standards of an Innovative system when the following conditions are met.

I. General

A. Scope of this Innovative Approval
1. Design, installation, use, and operation and maintenance guidelines for Ecoflo® Peat-based Biofilter systems to meet TS-I effluent standards pursuant to Rule 15A NCAC 18E .1201(a), Table XXV.
2. Operation, maintenance, and monitoring requirements for Ecoflo® Peat-based Biofilter systems and associated dispersal fields to ensure the treatment performance standards are met.

B. This Innovative System Approval is applicable to wastewater systems treating domestic strength effluent, as defined in 15A NCAC 18E .0402(a), Table III, utilizing Ecoflo® Peat-based Biofilter systems that have a design daily flow not exceeding 3,000 gallons per day (gpd).

   Use of Ecoflo® Peat-based Biofilter systems for facilities with high strength effluent, as defined in 15A NCAC 18E .0402(a), Table III or industrial process wastewater, shall be proposed by Premier Tech Water and Environment Ltd and a North Carolina Professional Engineer (PE) to the Department for review and approval on a case-by-case basis, prior to permitting by the local health department (LHD). The system design shall include the proposed raw wastewater strength (BOD_5, COD, TN, TSS, and fats, oils, and grease, the expected organic loading rate (in pounds of BOD), and hydraulic loading rate on the pretreatment system, and the calculations, references, and any other needed information to support the proposed design.

C. Any site utilizing these systems shall have wastewater with sufficient alkalinity to facilitate biological treatment processes. The influent shall not have a pH or toxins that significantly inhibit microbial growth.

D. Use of Ecoflo® Peat-based Biofilter systems that have a design daily flow exceeding 3,000 gpd may be permitted after approval by the Department on a case-by-case basis in accordance with 15A NCAC 18E .0302(e) or in accordance with G.S. 130A-336.1.

II. System Description

The Ecoflo® Peat-based Biofilter system consists of the following components: a Department approved septic tank; and single or multiple Ecoflo® Peat-based Biofilter module. Open bottom (Type A) systems are installed with a gravel pad underneath the module. Closed bottom (Type B) systems utilize a standalone Ecoflo® Peat-based Biofilter module integrating or followed by a pump tank and dispersal field.

III. Siting Criteria

The Ecoflo® Peat-based Biofilter systems and associated dispersal fields shall be sited and sized in accordance with 15A NCAC 18E, Section .1200 for TS-I systems. Drip irrigation systems used with Ecoflo® Peat-based Biofilter systems shall be sited and sized in accordance with 15A NCAC 18E .1204 and the manufacturer specific drip approval. The Ecoflo® Peat-based Biofilter systems and associated dispersal fields shall meet all applicable horizontal setback requirements in accordance with 15A NCAC 18E Section .0600 or .1202 and be located to prevent surface and subsurface water inflow and infiltration.

IV. Dispersal Field System Sizing

The system sizing criteria shall be based upon the long-term acceptance rate specified in the appropriate portion of the rules or the Provisional, Innovative, or Accepted system approval for the type of dispersal system to be used.

V. Special Site Evaluation

A special site evaluation may be required based on the proposed dispersal system. Refer to manufacturer specific drip approvals and 15A NCAC 18E .0510.

VI. Design Criteria

A. The Ecoflo® Peat-based Biofilter system shall be designed in accordance with the following criteria.
   1. The septic tank shall be sized in accordance with 15A NCAC 18E .0801. An access riser shall extend to finished grade and shall be provided over the outlet end. The riser shall be designed to prevent surface water inflow.
   2. The pump tank shall be sized in accordance with 15A NCAC 18E .0802.
   3. If a pump tank is used to convey septic tank effluent to feed the Ecoflo unit, the pump system shall be designed to deliver a net dosing volume of five to 15 gallons per module per dosing cycle at a rate of eight to 10 gallons/minute per module. Drainback volumes shall be factored in the design where applicable.
   4. Dosing onto the Ecoflo biofilter media could be regulated by a timed dosing control panel with a programmable timer, elapsed time meter, event counter, and alarm system. Dosing frequencies shall then range from 15 to 24 doses per day.
   5. In a closed bottom (Type B) system installation with a pump tank after the peat-based biofilter, the void space in the bottom of the modules beneath the filtering media can be included to meet the emergency storage capacity requirements. Refer to the product's technical datasheet for the volume/dosing capacity respective to each model. The emergency storage capacity requirement shall be met without the liquid level in the pump tank exceeding two inches below the bottom of the peat in the adjacent biofilter modules.
   6. The Ecoflo® Peat-based Biofilter fiberglass containment modules are made of pre-assembled, UV-protected fiberglass and polyester resin composite material. Refer to the product's technical datasheet for the dimensions of the different units available
   7. The Ecoflo® Peat Filter pre-cast concrete containment modules are made of pre-assembled, reinforced concrete. Refer to the product's technical datasheet for the dimensions of the different units available.
   8. The Ecoflo® Peat-based Biofilter is a pre-engineered proprietary treatment system. The following statement should be included on all permits and construction authorizations (CA): "The estimated life of the peat media is currently 10 to 12 years. The media may need to be replaced, in part or in full, in order to maintain specified treatment standards."
   9. The peat-based biofilter media shall be designed in accordance with the following parameters:
      a. Media thickness in inches: 31
      b. Maximum hydraulic loading rate in gpd per square foot: 6.9
      c. Maximum design daily flow rate per module
         i. Models ST/STB-650, STB-650 480 gpd
         ii. Models ST/STB-500 330 gpd
   10. Water distribution onto the filtering media is achieved by a tipping device and distribution plates. The effluent received either directly from the septic tank or from a pump tank goes from the inlet pipe to the tipping device. The tipping device then tips from side to side, by way of weight and gravity, spreading the water over the distribution plates. The distribution plates have channels with holes at various intervals allowing the water to be spread evenly over the

total surface of the peat media. The distribution plates are placed over the peat media without touching the media, allowing for air circulation.

11. When the design flow rate of an Ecoflo® Peat-based Biofilter system installation is greater than 480 gpd, more than one peat biofilter module shall be used and the effluent shall be evenly split between the biofilters. When the installation requires two units that can be gravity fed, a gravity flow divider shall be used to split flow uniformly between the two units. Whenever a pumping unit is required or whenever the installation requires more than two units, a pressurized flow divider specified by Premier Tech Water and Environment Ltd shall be used. The designer authorized in writing by Premier Tech Water and Environment Ltd (authorized designer), Authorized On-Site Wastewater Evaluator (AOWE), or PE shall specify the elevations for all relevant system components. These elevations shall be set relative to a site-specific vertical benchmark.
12. The treated effluent exits from the base of the module under gravity through the open base or through solid piping depending on the type of Ecoflo® Peat-based Biofilter system utilized. The system authorized designer, AOWE, or PE shall specify which type of unit is required for a specific design.
13. The lid on the peat biofilter unit contains a vent hole and insulation panel which accommodates the passive diffusion of oxygen into the unit. The vent hole shall not be covered.
14. Each system shall incorporate a system for flow monitoring. This shall be accomplished either by using the gravity distribution tipper, or in conjunction with the control panel for a drip or other pressurized dispersal system. When used for flow monitoring, the tipper shall include a manufacturer-provided event counter and data logger capable of recording the daily flow from the tipper counts for at least 30 days.
15. Open bottom (Type A) Ecoflo® Peat-based Biofilter Systems
    a. Each unit shall be centered on a contiguous level rock bed. Each rock bed shall be sized according to the LTAR but shall extend a minimum of one foot on each side of the unit and have a minimum depth of eight inches. The rock used shall meet the requirements of 15A NCAC 18E .0902(b)(4).
    b. The bottom of the rock bed may be installed a maximum of five feet below finished grade. When the bed depth exceeds three feet, the vertical separation distance must be increased by six inches.
    c. The bed shall be constructed as an elongated berm, with the long axis parallel to the ground elevation contours of the slope. The bottom of the bed shall be excavated level, ± ¼ inch, in all directions. The gravel bed shall be immediately installed without allowing machinery to traverse the excavated and exposed bed bottom. Exposed portions of the rock bed that are not under the unit shall be covered by a geotextile fabric prior to back filling. The geotextile fabric shall be capable of preventing the downward movement of silt-sized particles while allowing the movement of moisture and gases.
    d. After passing through the filtering media, the effluent is distributed over the rock bed through the open base of the unit.
    e. For effluent sampling, a sampler made of a collection plate and a sample collection chamber, is placed at the base of the filtering media enabling the water to be collected and diverted towards the sampling port located in the central support. This sampling port is accessible through the lid of the system and provide for easy access to the sample collection chamber. A hole at the bottom of the sample chamber allows seepage of uncollected effluent into the underlying rock pad.

16. Closed bottom (Type B) Ecoflo® Peat-based Biofilter Systems
    a. The unit must be installed on a bed of gravel for stabilization. The gravel shall be clean, crushed No. 5 or No. 57 stone or fine sand with a minimum depth of six inches. Alternative bedding designs may be specified by the authorized designer, AOWE, or PE which provide for the unit to be adequately supported and level.
    b. The gravel or sand bed shall be installed level, ± ¼ inch, in all directions, with the unit configuration installed as shown in the design. The gravel bed or sand bed must extend a least six inches beyond the ends of the unit in all directions.
    c. After passing through the filtering media, effluent is collected and piped from the base of the sealed bottom of the unit to the dispersal field, either by gravity or pump. The dispersal field shall be set back horizontally a minimum of two feet from the gravel bed beneath the modules.
    d. For effluent sampling for Ecoflo® Models STB-650 and STB-500, a sampler made of a collection plate and a sample collection chamber, is placed at the base of the filtering media enabling the water to be collected and diverted towards the sampling port located in the central support. This sampling port must be accessed through the lid of the system and provide for easy access to the sample collection chamber. A hole at the bottom of the sample chamber allows seepage of uncollected effluent into the underlying rock pad. A distribution box or drop box may be used for the sampling access point, located in the effluent discharge line from the peat unit prior to the dispersal field. The box must be constructed to facilitate at-grade access.
    e. For effluent sampling for the Ecoflo® Model STB-650B, the access funnel is used for the effluent sampling. This sampling port must be accessed through the secondary lid of the system.
17. Backfill shall be installed over the gravel bed along the sides of the unit, with the unit lid remaining at least two inches above finished grade. Minimum backfill depth shall be six inches. Backfill shall be installed with a side slope not to exceed a rise to run ratio of 1:3, unless a dry stacked interlocking block retaining wall is constructed adjacent to the gravel bed. Any other type of retaining wall shall be designed by a PE and approved by the LHD. The use of a retaining wall to support the backfill does not supersede side slope requirements for fill systems, which still must be met, where applicable.

B. Ecoflo® Peat-based Biofilter systems shall be designed by an authorized designer, AOWE, or a PE. Systems over 1,000 gpd shall be designed by a PE.

VII. Installation and Testing

A. A preconstruction conference shall be required to be attended by the authorized designer, PE, if applicable, installer authorized in writing by Premier Tech Water and Environment Ltd (authorized installer), and LHD prior to beginning installation of the Ecoflo® Peat-based Biofilter system.

B. All Ecoflo® Peat-based Biofilter systems shall be installed according to directions provided by Premier Tech Water and Environment Ltd.

C. All individuals or companies installing Ecoflo® Peat-based Biofilter systems shall be in possession of all necessary permits and licenses before attempting any portion of a new or repair

installation. The company or individual must be a Level IV installer and authorized in writing by Premier Tech Water and Environment Ltd.

D. Watertightness of the septic and pump tanks shall be demonstrated by a leak test in accordance with one of the following:
   1. 24-hour water leak test conducted at the installation site. A water level change of one-half inch or more over twenty-four hours, or visual observation of leakage shall be cause for failure of the watertightness test; or
   2. one of the testing methods in 15A NCAC 18E .0805(b).

E. The authorized installer, PE or authorized designer, and the operator authorized in writing by Premier Tech Water and Environment Ltd (authorized operator), shall conduct a final inspection and start-up of the Ecoflo® Peat-based Biofilter system and all associated system components. The LHD will attend and observe the final inspection and start-up.

F. Specified site preparation steps and construction specifications for the dispersal system shall be strictly adhered to, including specified depth of trenches in relation to site limiting conditions, cover material specifications if needed, trench installation method, etc.

VIII. Operation, Maintenance, Monitoring, and Reporting

A. Ecoflo® Peat-based Biofilter systems shall be classified, at a minimum, as a Type Va system in accordance with 15A NCAC 18E .1301(b), Table XXXII. Management and inspection shall be in accordance with 15A NCAC 18E, Section .1300.

B. All Ecoflo® Peat-based Biofilter systems require an operation and maintenance agreement between the system owner and Premier Tech Water and Environment Ltd, its authorized representative, or with an authorized operator in accordance with 15A NCAC 18E .1302(c). The authorized operator must have proper equipment and training to access and program the control panels on site. The authorized operator shall be:
   1. a North Carolina certified subsurface operator (Operator in Responsible Charge); and
   2. either an employee of Premier Tech Water and Environment Ltd or authorized in writing by Premier Tech Water and Environment Ltd.

C. All Ecoflo® Peat-based Biofilter systems shall be operated and maintained according to the latest version of Premier Tech Water and Environment Ltd USA O&M manual.

D. At each Ecoflo® Peat-based Biofilter system inspection, the authorized operator shall follow service procedure steps identified in the Premier Tech Water and Environment Ltd USA O&M Manual and, at a minimum, observe, monitor, and record the following:
   1. Wastewater, sludge, and scum levels in all tanks;
   2. Watertightness of all tanks, risers, and pipe connections at the tanks;
   3. Operation of pumps, floats, valves, electrical controls, and alarms, including record of alarms since last visit and troubleshooting actions;
   4. Dispersal field pump delivery rate based on a drawdown test, determination of the average pump run time, and dispersal field dosing volume;

5. Readings from pump cycle counters and elapsed time meters or water meter;
6. Any structural damage, accessibility issues, adequate ventilation, excess odors, ponding of effluent, insect infestations, vegetative growth over the dispersal field, or surfacing of effluent on the dispersal field; and
7. Effluent sample collected from the sampling port. An influent sample shall only be collected if needed.
8. All Ecoflo® Peat-based Biofilter modules shall be opened annually to observe effluent distribution within and between modules, the condition of the filtering media, root or sand infiltration, insect infiltration, and effluent ponding in the filter.

E. An annual visual inspection of each Ecoflo® module shall be made by the authorized operator, in accordance with the Ecoflo Visual Inspection Protocol in Appendix A. For systems serving Vacation Rentals, this visit shall be scheduled during the seasonal high use period and shall coincide with any required water quality sampling. This inspection should typically also coincide with Premier Tech Water and Environment Ltd's annual maintenance of the unit. The need for any additional maintenance, inspections, or repairs will also be assessed by the authorized operator during this inspection.

F. The authorized operator shall conduct any other measurements, monitoring, maintenance activities, and observations as specified in the Operation Permit (OP) and recommended by the manufacturer.

G. Sampling
   1. All sampling shall be done in accordance with 15A NCAC 18E .1302 and .1709. Ecoflo® Peat-based Biofilter systems shall be sampled annually when the design daily flow is less than or equal to 1,500 gpd. Systems with design daily flows greater than 1,501 gpd and less than or equal to 3,000 gpd shall be sampled twice a year.
   2. Effluent for all systems shall be tested for BOD_5 and NH_3-N.
   3. Influent samples, if needed, shall be taken from the outlet end of the septic tank.
   4. Effluent samples shall be collected from the sampling port.
      a. For open bottom (Type A) systems, a sampler made of a collection plate and a sample collection chamber, is placed at the base of the peat media enabling the water to be collected and diverted towards the sampling port located in the central support. This sampling port must be accessed through the lid of the system and provide for easy access to the sample collection chamber.
      b. For closed bottom (Type B) systems, for Ecoflo® Models STB-650 and STB-500, a sampler made of a collection plate and a sample collection chamber, is placed at the base of the peat media enabling the water to be collected and diverted towards the sampling port located in the central support. This sampling port must be accessed through the lid of the system and provide for easy access to the sample collection chamber. A distribution box or drop box may be used for the sampling access point, located in the effluent discharge line from the peat unit prior to the dispersal field. The box must be constructed to facilitate at-grade access. For effluent sampling for the Ecoflo® Model STB-650(H1), the access funnel is used for the effluent sampling. This sampling port must be accessed through the secondary lid of the system.

H. Notification and Performance of Maintenance and Repairs
   1. The authorized operator shall alert Premier Tech Water and Environment Ltd, the LHD, and the system owner within 48 hours of needed maintenance or repair activities including but not limited to landscaping, tank sealing, tank pumping, pipe or control system repairs, media or aerator replacement, and/or adjustments to any other system component.
   2. The authorized operator shall notify the system owner, Premier Tech Water and Environment Ltd, and the LHD whenever the pump delivery rate efficiency or average pump run times are not within 25 percent of the initial measurements conducted prior to system start-up.
   3. System troubleshooting and needed maintenance shall be provided to maintain the pump delivery rate and average pump run time within 25 percent of initial measurements conducted during system start-up.
   4. Tank compartments will be pumped as needed upon recommendation of the authorized operator and in accordance with the Premier Tech Water and Environment Ltd system Operation and Maintenance instructions.
   5. The tanks shall be pumped by a permitted septage management firm, and the septage handled in accordance with 15A NCAC 13B .0800.
   6. All maintenance activities shall be logged and recorded in the authorized operator reports provided to the LHD.

I. Reporting
   The authorized operator shall provide a written report to the system owner, Premier Tech Water and Environment Ltd, and the LHD within 30 days of each inspection. At a minimum, this report shall specify:
   1. The date and time of inspection;
   2. System operating conditions measured and observed according to VIII.D and VIII.E;
   3. Results from laboratory analyses of effluent samples, and influent samples as needed;
   4. Maintenance activities performed since the last inspection report;
   5. An assessment of overall system performance;
   6. A list of any improvements or maintenance needed;
   7. 7- and 30-day readings as required in 15A NCAC 18E .1702(a)(2)(I);
   8. A determination of whether the system is malfunctioning, and the specific nature of the malfunction; and
   9. Any changes made in system settings based on recommendations of the manufacturer.

IX. Responsibilities and Permitting Procedures

A. Prior to the installation of a Ecoflo® Peat-based Biofilter system at a site, the owner shall submit an application or Notice of Intent (NOI) to the LHD for the proposed use of this system. Improvement Permits (IP) or Construction Authorizations (CA) issued by the LHD shall have a soil and site evaluation conducted either by the LHD, LSS, or Authorized On-Site Wastewater Evaluator (AOWE). The NOI shall include a soil and site evaluation conducted by an LSS.

B. The IP, CA, and NOI shall contain all the conditions the site approval is based upon, including the proposed used of the Innovative system. The OP will include all conditions specified in the IP

and CA. The Authorization to Operate (ATO) should include all the conditions specified in the NOI.

C. When a special site evaluation is required pursuant to 15A NCA 18E .0510, an evaluation and written, sealed report from a Licensed Soil Scientist (LSS) regarding the site shall be provided to the LHD. The report shall contain the information specified in 15A NCAC 18E .0510(d). The LHD may request the assistance of their Regional Soil Scientist in evaluating this report prior to permit issuance.

D. Ecoflo® Peat-based Biofilter systems shall be designed by either an authorized designer, AOWE, or a PE. Systems over 1,000 gpd, or as required in accordance with 15A NCAC 18E .0303(a) shall be designed by a PE.

E. Prior to the LHD issuing a CA for a Ecoflo® Peat-based Biofilter system, a design submittal prepared by an authorized designer, AOWE, or PE shall be submitted. The design submittal shall include the information required in 15A NCAC 18E .0305.

F. It is recommended that local authorized environmental health specialists attend a design training session offered by the manufacturer or the authorized representative prior to permitting the system. Also, at the request of the LHD, a Regional Engineer will review designs.

G. For sites required to be evaluated by an LSS or Licensed Geologist (LG), see Section V and IX.C, the LHD, AOWE, or PE may specify as a condition of the IP and CA that an LSS or LG oversee critical phases of the dispersal field installation and certify in writing that the installation was in accordance with their specified site and installation requirements prior to the OP or ATO issuance.

H. The authorized operator shall be present during the final inspection of the system prior to the issuance of the OP or ATO.

I. The LHD shall issue the OP after the following:
   1. Field verification of installation completion;
   2. Receipt of written documentation from the authorized designer, AOWE, or PE that the system has been designed, installed, and is operating in accordance with the approved plans; and
   3. All necessary legal documents have been completed, including the contract between the system owner and the authorized operator.

   The LHD shall issue the OP for an (a2) and (a5) application after all necessary legal documents have been completed, including the contract between the system owner and the authorized operator.

   The ATO shall be submitted to the LHD in accordance with G.S. 130A-336.1 and G.S. 130A-336.2.

X. Repair of Systems

The provisions of 15A NCAC 18E .1302 shall govern the use of the Ecoflo® Peat-based Biofilter system for repairs to existing malfunctioning wastewater systems.

Approved By: _____ Date: _____

Appendix A – Visual Inspection Protocol

An annual visual inspection of each Ecoflo module shall be made by the authorized operator. For systems serving Vacation rentals, this visit shall be scheduled during the seasonal high use period and shall coincide with any required water quality sampling.

A. The LHD shall be notified at least 48 hours prior to this inspection and may be present as an observer while the inspection is conducted.
B. For systems containing a flow monitoring device and data logger, the 7-day and 30-day wastewater flow from the facility to the system prior to this inspection shall be determined and recorded, or an alternate approved means utilized. For existing systems where it is not feasible to directly obtain the past 7-day and 30-day flow, water usage during the previous 7-to-30-day period shall be estimated by using the best available information, including water meter readings, elapsed time clock readings when an effluent pump is present, and occupancy information.
C. Effluent flow between multiple modules and operation of the tipper bucket(s) and distribution plates shall be observed to be uniform and unimpeded and all associated components found to be functioning properly. If any problems with the distribution system are found, such problems shall be documented with one or more digital pictures, as well as field notes describing the specific issues(s), so that any necessary repairs can be made.
D. The distribution plates shall be removed, and the peat surface and infiltration zone inspected for ponding, excessive settlement or scouring beneath the distribution orifices, uniformity of effluent distribution to the peat, and peat condition:
    1. Infiltration Zone for Type A Systems: The presence and depth of any saturated zone above the trench/bed bottom shall be noted. Any saturated zone shall be no more than 6-inches above the bottom of the gravel bed, as determined by measuring the depth to the gravel bed ponding surface in the filter sampling chamber. If ponding is observed, the authorized operator shall evaluate whether this is an intermittent or ongoing condition. The site shall be considered to be malfunctioning if the effluent surface is observed to remain more than 6-inches above the bottom of the gravel bed for two or more observations made not less than 48 hours apart and not less than 48 hours after a rainfall event.
    2. Peat and surface condition shall be observed and visually described prior to any raking or addition of peat. A digital before picture shall be taken of both sides of the module(s), and the peat appearance compared with manufacturer-standards of good, partially degraded, and degraded peat. Compaction of the peat bed shall be recorded by measuring the depth of peat moss level from the top of the central support.
    3. If liquid ponding of one inch or more is observed over more than 50 percent of the total peat bed surface area prior to raking, the authorized operator shall:
        a. determine whether the system is receiving excessive flows by utilizing flow data from an existing flow monitoring device or by installing a flow monitor device and returning to the site within 15 to 30 days to collect the data. Where flow data indicates flows to the system exceed the design capacity, the authorized operator shall notify the owner in writing immediately, with a copy to the LHD, that the system is not being operated in compliance with the OP, and include a description of all relevant details;
        b. where flow monitoring indicates normal usage, utilize influent sampling to determine whether influent concentrations exceed the criteria set forth in 15A NCAC 18E .1201(a), Table XXV or other harmful influent characteristics are present which could be causing

premature peat deterioration or otherwise contributing to the ponding problems. Where chemical analysis indicates such a problem with influent characteristics, the authorized operator shall notify the owner in writing immediately, with a copy to the LHD, that the system is not being operated in compliance with the OP, and include a description of all relevant details;

c. determine whether ponding is persistent by performing routine maintenance raking of the system and then returning in 15 to 45 days to observe whether ponding of one inch or more over 50 percent of the total peat bed surface area is present. When the authorized operator issues a notice to the Homeowner for either high flows or influent problems, the authorized operator shall wait 10 business days after sending such notice before returning to the system to observe whether ponding is persistent. Where ponding, as defined in this document, is observed on at least two separate observations that have made between 15 and 45 days apart despite routine maintenance, the authorized operator shall notify the owner in writing immediately, with a copy to the LHD, that the system is non-compliant, and include a description of all relevant details.

4. The peat surface shall be raked, and adjustments shall be made, as needed, to ensure uniform effluent distribution. A digital after picture shall be taken of the peat surface documenting its condition after annual servicing.

E. When the site, facility, dwelling or system is out of compliance, as described above, the LHD and the homeowner shall be notified and further investigation might be required before undertaking any corrective actions. Any further modifications to the peat surface or adjustments to internal components shall be made only as prescribed by the manufacturer and approved by the LHD.