Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

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MODIFIED CERTIFICATION FOR GENERAL USE
Pursuant to Title 5, 310 CMR 15.000

Name and Address of Applicant:
SeptiTech/Bio-Microbics of Maine; Inc.
69 Holland Street
Lewiston, ME 04240

Trade name of technology and Models:

SeptiTech models STAAR 0.5 (M400), STAAR 0.75 (M550N), STAAR 1.0 (M750N), STAAR 1.2 (1200N), STAAR 1.5 (M1500NN), STAAR 3.0 (M2500N), and STAAR 4.5 (M300N) and SeptiTech Engineered Systems (all hereinafter the 'System' or the 'Technology') for facilities with design flows less than 2,000 gallons per day (GPD). Schematic drawings illustrating the models and an Inspection Checklist, Owner and Operator Manuals, Installation Manua are part of this Certification.

DEP Transmittal No./Accela system ID No.: 22-WP75B-0001-REN
Date of Issuance: September 4, 2018, Modified January 26, 2023.

Authority for Issuance:

Pursuant to Title 5 of the State Environmental Code, 310 CMR 15.000, the Department of Environmental Protection (hereinafter "the Department") hereby issues this General Use Approval to: SeptiTech/Bio-Microbics of Maine Inc., 69 Holland Street, Lewiston, ME 04240 (hereinafter "the Company"), approving the above referenced SeptiTech technology (hereinafter "the Technology" or "System") for use in the Commonwealth of Massachusetts subject to the conditions herein. Sale and use of the Technology are subject to compliance by the Company, the Designer, the System Installer, the Operator, and the System Owner with the terms and conditions herein. Any noncompliance with the terms or conditions of this Certification constitutes a violation of 310 CMR 15.000.

/s/ Marybeth Chubb
Marybeth Chubb, Section Chief
Wastewater- Management Program
Bureau of Water Resources

January 26, 2023
Date

I. Purpose

1. Subject to the conditions of this Approval and any other local requirements, the purpose of this Approval is to allow the use of the System in Massachusetts on a General Use basis. With the necessary permits and approvals required by 310 CMR 15.000, this Certification authorizes the installation and use of the System in Massachusetts.

2. The System may be installed for residential facilities with design flow less than 2000 GPD where a system in compliance with 310 CMR 15.000 exists on-site or could be built and for which a site evaluation in compliance with 310 CMR 15.000 has been approved by the local approving authority; or by the Department if Department approval is required by 310 CMR 15.000. This approval allows for the use of the System on facilities for nitrogen reduction in a Department designated nitrogen sensitive or limited area as defined in 310 CMR 15.214 and 15.215.

   Non-residential facilities are not allowed under this approval. Non-residential facilities include properties with businesses and/or commercial establishments.

3. The System is approved for use at facilities with a maximum design flow of less than 2,000 GPD and shall meet or exceed the following effluent discharge requirements:
   - Effluent Total Nitrogen (TN) concentration of 19 mg/L (for 660 gallons per day per acre-gpda-loading) or 25 mg/L (for 550 gpda loading).
   - Effluent pH range shall be 6.0 to 9.0
4. The System Owner or the designated System Operator (or 'Operator') has responsibility for oversight and sampling of the System if the property served was allowed to increase the discharge rate per acre above 440 gpda in an area subject to Nitrogen Loading Limitations.

   The System Owner will be required to repair, replace, modify, or take any other actions as required by the Department or the local approving authority, if the Department or the local approving authority determines that the System is not capable of meeting the required reduction in the effluent.

   The Company is responsible for the approved technology as described below.

II. General Description of the Technology

1. The SeptiTech unit (the 'System') is installed in series between the building sewer and the soil absorption system (SAS) of a standard Title 5 system in a manner which neither intrudes

on, replaces a component of, or adversely affects the operation of a Title 5 system constructed in accordance with 310 CMR 15.000, subject to the provisions of this Approval.

2. The SeptiTech System is an aerobic wastewater treatment system that uses an enhanced recirculating biological trickling filter treatment process anoxic phase to reduce biochemical oxygen demand (BOD5), total suspended solids (TSS) and total nitrogen from sanitary wastewater by biological degradation. The wastewater flows into the first of two tanks consisting of a two-compartment primary – anoxic tank where primary settling and partial denitrification occur. The second processor tank contains the trickling filter media and pumps for recirculation within the trickling filter, recirculation back to the anoxic tank and for discharge to the distribution box of the SAS or to a pressure distribution system. In addition to BOD reduction, further nitrification occurs in the mixed-liquor as it passes through the trickling filter with the ammonium in the wastewater converting to nitrate. The System uses a hydrophobic media composed of either polystyrene beads or polystyrene with honeycomb shaped solid media, in a two-stage process that allows biological growth within the media pore spaces, The System operates as follows:

   - Wastewater from the primary anoxic tank enters the treatment tank and collects in a reservoir at the base of the tank where it mixes with treated wastewater.
   - A recirculation pump controlled by the PLC pumps the wastewater to the treatment area at the top of the tank where air is drawn into the wastewater.
   - The aerated wastewater is sprayed over the hydrophobic media which is suspended above the reservoir, wastewater trickles through the media and returns to the reservoir,
   - Wastewater is recirculated over the media 70 or more times per day.
   - Effluent is returned on a scheduled basis to the anoxic tank for denitrification
   - Solids in the reservoir are periodically returned to the anoxic tank.

   SeptiTech Models STARR .75 (M550N) through 1.0 (M750N) come prefabricated in HDPE or concrete tanks and have Hydrophobic bead media in mesh bags. SeptiTech Models STAAR 1.2 (M1200N) through STAAR 4.5 (M3000N) are configured similar to STAAR .75 (550N) series tanks however these units include a larger processor tank and use a combination of the larger commercial solid media and hydrophobic bead media in mesh bags. A programmable logic controller (PLC) controls the treatment process. The PLC continuously monitors incoming flows and adjusts the treatment process (recirculation, recycle, sludge return and discharge cycles).

   The control panel including alarms are mounted in a location accessible to the operator (or Service Contractor) of the System.

3. All access ports and manhole covers shall be readily removable, of durable material and installed and maintained at grade to allow for maintenance of the System. No structures shall be located directly upon or above the access locations which could interfere with performance, access, inspection, pumping, or repair. Sufficient access for infrequent maintenance of the System treatment media and all other treatment works shall be evaluated, and addressed in the System design, if necessary, by the designer.

4. Wastewater Loading and Effluent Concentration Design Standards

For new residential construction in an area subject to the Nitrogen Loading Limitations of 310 CMR 15.214, and the facility does not meet with the Nitrogen Loading Limitations pursuant to the aggregation provision of 310 CMR 15.216, an increase in calculated loading per acre is allowed for facilities with design flow less than 2000 gpd with limitations as follows:

- The design flow shall not exceed 660 gallons per day per acre (gpda) and the total nitrogen (TN) concentration in the effluent shall not exceed 19mg/L, or
- The design flow shall not exceed 550 gallons per day per acre (gpda) and the total nitrogen (TN) concentration in the effluent shall not exceed 25 mg/L.
- TN is measured as the total of TKN (Total Kjedhal Nitrogen), NO_3 – N (Nitrate Nitrogen) and NO_2 – N (Nitrite Nitrogen).

III. General Conditions

1. The provisions of 310 CMR 15.000 are applicable to the use of this System, the System owner and the Company, except those that specifically have been varied by the terms of this Certification.
2. The use of the Technology under this Approval requires:
    - Disclosure Notice in the Deed to the property;
    - Certifications by the Company, the Designer, and the Installer;
    - System Owner Acknowledgement of Responsibilities;
    - A certified operator under contract for periodic inspection and maintenance;
    - Periodic sampling;
    - Recordkeeping and reporting; and
    - An external power supply.
3. Any required operation and maintenance, monitoring and testing shall be performed in accordance with a Department approved plan. Any required sample analysis shall be conducted by an independent U.S. EPA or DEP approved testing laboratory, or a DEP approved independent university laboratory, unless otherwise provided in Department's written approval. It shall be a violation of this Certification to falsify any data collected pursuant to an approved testing plan, to omit any required data or to fail to submit any report required by such plan.
4. The facility served by the System and the System itself, shall be open to inspection and sampling by the Department and the local approving authority at all reasonable times.
5. In accordance with applicable law, the Department and the local approving authority may require the System owner to cease operation of the system and/or to take any other action as it deems necessary to protect public health, safety, welfare, or the environment.
6. The Department has not determined that the performance of the system will provide a level of protection to public health and safety and the environment that is at least equivalent to that of a sanitary sewer system. Accordingly, no system shall be upgraded or expanded, if it is feasible to connect the facility to a sanitary sewer, unless as allowed by 310 CMR 15.004.

7. Design installation, and use of the System shall be in strict conformance with the Company's DEP approved plans and specifications and 310 CMR 15.000, subject to this Certification.

IV. Conditions Applicable to the System Owner

1. The System owner shall at all times have the System properly operated and maintained by a Company approved Operator in accordance with this Certification, the designer's operation and maintenance requirements and the Company's approved procedures.
2. The System is certified only in connection with the discharge of sanitary wastewater from facilities with a design flow of less than 2000 gpd. Any non-sanitary wastewater generated and/or used at the facility served by the System shall not be introduced into the System and shall be lawfully disposed of.
3. The System Owner shall provide access to the site for the System Operator to perform inspections, maintenance, repairs, responding to alarm events, field testing, and sampling as may be required by the Approval.

Operation and Monitoring Requirements

4. System effluent total Nitrogen (TN) concentrations shall not exceed 19 or 25 mg/L and effluent pH shall not be less than 6.0 or more 9.0. Field test observations of dissolved oxygen (DO) shall equal or exceed 2 mg/L and for Turbidity shall be equal or less than 40 NTU.
5. All samples shall be taken at a flowing discharge point, i.e., distribution box, pipe entering a pump chamber or other Department approved location from the treatment unit.
6. Inspection, operation, and maintenance (O&M), sampling, and field testing of the System required by the Approval shall be performed by a Company approved Operator who has been certified at a minimum of Grade 4 (four) by the Board of Registration of Operators of Wastewater Treatment Facilities, in accordance with Massachusetts regulations 257 CMR 2.00, and is an approved Title 5 System Inspector in accordance with 310 CMR 15.340.
7. Prior to commencement of construction of the System, the System Owner shall provide to the local approving authority a copy of a signed O&M Agreement that meets the requirements of Section IV, paragraph (8).
8. The System Owner shall maintain, at all times, an O&M Agreement with a qualified System Operator approved by the Company. The Agreement shall be at least for one year and include the following provisions:

    a) The name of a System Operator who is an approved System Inspector accordance with 310 CMR 15.340 and who meets any additional qualification requirements specified in the Approval:
    b) The System Operator must inspect the Alternative System as required by Section IV, paragraphs (9) and (12);

c) The System Operator shall be responsible for submitting the monitoring results to the System Owner in accordance with Section IV, paragraph (13) and to the local approving authority in accordance with Section IV, paragraph (14); and
d) In the case of a System failure, alarm event, components not functioning as designed, or violations of the Approval, procedures and responsibilities of the System Operator and System Owner shall be clearly defined for corrective measures to be taken immediately. The System Operator shall agree to provide written notification within five days, describing corrective measures taken, to the System Owner and the local Board of Health.

9. The System Owner shall comply with the following monitoring requirements if the System is subject to a TN concentration is limit in accordance with Section II, paragraph (4):
   a) Year-round installations shall be inspected and have effluent sampled for at least the TN parameter quarterly for the first year, then a minimum of twice/year thereafter, at least 5 months apart and with at least one sample taken between December 1 and March 1 of each year. Field testing shall be completed per Section IV, paragraph (11) below and as determined necessary by the System Operator. See DEP Testing Protocol at *https://www.mass.gov/files/documents/2016/08/wp/testsamp.pdf.* Wastewater flow shall be recorded at each inspection, see "Flow Metering" Section IV, paragraph (10).
   b) Seasonal installations shall be inspected and have effluent sampled for at least the TN parameter a minimum of twice/year. At least one sample must be taken 30 to 60 days after each seasonal occupancy begins. A second must be taken no less than 2 months after the first sample. Field testing shall be completed per Section IV, paragraph (11) below and as determined necessary by the System Operator. Wastewater flow shall be recorded at each inspection, see 'Flow Metering' Section IV, paragraph (10).
   c) Systems in operation prior to issuance of this Approval, which have received approval of sampling reduction from the Department may continue with that System monitoring frequency.

Properties occupied at least 6 months per year are considered year-round properties.
Properties occupied less than 6 months per year are considered seasonal properties.

TN is measured as the total of TKN (Total Kjeldhal Nitrogen), NO3 – N (Nitrate nitrogen) and NO2-N (Nitrite nitrogen).

10. Flow Metering: Reporting of residential System water use is not required, however it is recommended the Operator record meter readings if available at all inspections, or otherwise estimate System flow, to assist in addressing possible operational problems or issues. Flow measurement when recorded shall be based on:
    a) actual metering data of wastewater flow to the System or actual water meter data of flow to fixtures that discharge to the wastewater system; or
    b) actual water meter data for the total facility with either actual meter data or estimated flows for non-wastewater usage subtracted from the total facility- water usage. If estimating the wastewater portion of metered water usage, the System Operator shall

provide a best estimate of wastewater discharged to the System with method of estimating, such as pump run times, occupancy rates, adjustment due to seasonal outdoor watering use, etc.; or

c) For Systems installed under a prior Approval that did not include a wastewater flow data reporting requirement, if no flow meters are available, the System Operator shall provide a best estimate of wastewater discharged to the System with the method of estimating, such as pump run times, occupancy rate, etc.

d) An authorized agent of the Company must certify to the Approving Authority in writing that the installation was done by a qualified Installer approved by the Company and the installation conforms to this Approval. The Authorized agent of the Company responsible for the inspection of the installation shall have received technical training in the Company's products; and

11. Field Testing: Temperature, Turbidity, pH and DO shall be measured and recorded in the field whenever the effluent is sampled for TN. See applicable sections of the Department's Field Testing Protocol at ***http://www.mass.gov/files/documents/2016/08/wp/testsamp.pdf.***
12. At minimum, the System Operator shall inspect the System:
    a) Quarterly for the first year then two times per year thereafter,
    b) in accordance with the approved O&M manual, the Designer's operation and maintenance requirements, and the requirements of the local approving authority; and
    c) any time there is an alarm event, equipment failure, or system failure.

Recordkeeping and Reporting

13. Within 60 days of any site visit, the System Operator shall submit an O&M report and inspection checklist to the System Owner and Company. It is recommended the System Owner and Company maintain copies of these items for possible Department audit. The O&M report shall include, at a minimum:
    a) for a System failing, any corrective actions taken;
    b) wastewater analyses, wastewater flow data, field testing results and inspection checklists;
    c) any violations of the Approval;
    d) any determinations that the System or its components are not functioning as designed or in accordance with the Company specifications; and
    e) any other corrective actions taken or recommended.

14. By February 15th of each year the System Owner or the System Operator if designated by the owner, shall submit to the local approving authority all monitoring results with all O&M reports and inspection checklists completed by the System Operator during the previous 12 months.
15. Upon determining that the System has failed, as defined in 310 CMR 15.303, the System Operator shall notify the System Owner immediately.

16. Upon determining that the System has failed, as defined in 310 CMR 15.303, the System Owner and the System Operator shall be responsible for the notification of the local approving authority within 24 hours 24 hours of such determination.
17. The System Owner shall notify the Approving Authority and the Company in writing within seven days of any cancellation, expiration or any other change in the terms and/or conditions of the O&M Agreement required by Section IV, paragraph (8).
18. Violations of the TN concentration in the System effluent shall not constitute a failure of the System for the purpose of 24-hour notification 5-day written reporting as required in Section IV, paragraphs (16) and (8).
19. The System owner shall provide a copy of this Approval, prior to the signing of a purchase and sale agreement for the facility served by the System or any portion thereof, to the proposed new owner.
20. The System owner shall owner shall furnish the Department any information that the Department requests regarding the System, within 21 days of the date of receipt of the request.
21. Prior to issuance of a Certificate of Compliance of the System, and after recording and/or registering the Notice required by 310 CMR 15.287(10) the System Owner shall provide to the Local Approving Authority a copy of: (i) a certified Registry copy of the Notice bearing the book and page/or document number; and (ii) if the property is unregistered land, a Registry copy of the System Owner's deed to the property, bearing a marginal reference on the System Owner's deed to the property. The Notice to be recorded shall be in the form of the Notice provided by the Department.
22. Prior to signing any agreement to transfer any or all interest in the property served by the System, or any portion of the property, including any possessory interest, the System Owner shall provide written notice of all conditions contained in the Approval to the transferee(s). Any and all instruments of transfer and any leases or rental agreements shall include as an exhibit attached thereto and made a part of thereof a copy of the Approval for the System. The System Owner shall send a copy of such written notification(s) to the Local Approving Authority within 10 days of giving such notice to the transferee(s).

V. Conditions Applicable to the Company

1. The Company shall notify the Director of the Wastewater Management Program at least 30 days in advance of the proposed transfer of ownership of the technology for which this Certification is issued. Said notifications shall include the name and address of the proposed new owner and a written agreement between existing and proposed new owner containing a specific date for transfer of ownership, responsibility, coverage and liability, coverage, and liability between them. All provisions of this of this Certification applicable to the Company shall be applicable to successors and assigns of the Company, unless the Department determines otherwise.

2. The Company shall develop, maintain, and update as necessary the following:
   . Minimum installation requirements;
   - An operating manual, including information on substances that should not be discharged to the System;
   - A maintenance checklist; and
   - A recommended schedule for maintenance of the System consistent with the Department's requirements essential to consistent successful performance of the installed Systems.
3. The Company shall institute and maintain a program of operator training and continuing education. The Company shall maintain and annually update, and make available the list of qualified operators by February 15th and make the list known to local approving authorities, the Department and to users of the technology.
4. The Company shall furnish the Department any information that the Department requests regarding the System, within 21 days of the receipt of that request.
5. The Company shall include copies of this Certification and the procedures described in Section V, paragraph (3) with each System that is sold. In any contract executed by the Company for distribution or resale of the System, the Company shall require the distributor or re-seller to provide each purchaser of the System with copies of this Certification and the procedures described in Section V, paragraph (3).
6. A copy of the wastewater analyses, wastewater flow data, field testing results, and System Operator O&M reports and inspection checklists from each installed System shall be maintained by the Company or its designee for possible Department audit.

VI. Conditions Applicable to the System Designer

1. Upon submission of an application for a DSCP, the Designer shall provide to the local approving authority:

   a) a certification, signed by the owner of record for the property to be served by the System, stating that the property owner:

   i. has been provided a copy of the Approval, the Owner's Manual, and the Operation and Maintenance Manual, if applicable, and the owner agrees to comply with all terms and conditions;

   ii. has been informed of all the owner's costs associated with the operation, including, when applicable: power consumption, maintenance, sampling, recordkeeping, reporting, and equipment replacement;

   iii. understands the requirement for a service contract;

   iv. agrees to fulfil his responsibilities to provide a Deed Notice as required by 310 CMR 15.287(10) and the Approval;

   v. agrees to fulfill his responsibilities to provide written notification of the Approval to any new owner, as required 310 CMR 15.287(5);

vi. if the design does not provide for the use of garbage grinders the restriction is understood and accepted.

vii. if the design is for an upgrade of failed or nonconforming system, the System Owner has been provided a copy of the evaluation of the existing system;

viii. whether or not covered by a warranty, the System Owner understands the requirement to repair, replace, modify or take any other action as required by the Department or the local approving authority determines that the Alternative System is not capable of meeting the performance standards; and

b) a certification, signed by the Designer that that the design conforms to the Approval with Conditions and 310 CMR 15.000.

VII. Reporting

1. All notices and documents required to be submitted to the Department by this Certification shall be submitted to:

Director
Wastewater Management Program
Department of Environmental Protection
100 Cambridge St, Suite 900
Boston, Massachusetts 02114

VIII. Rights of the Department

1. The Department may suspend, modify of or revoke this this Certification for cause, including, but not limited to, non-compliance with the terms of this Certification, non-payment of any annual compliance assurance fee, for obtaining the Certification by misrepresentation or failure to disclose fully all relevant facts or any change in or discovery of conditions that would constitute grounds for discontinuance of the Certification, or as necessary for the protection of public health, safety, welfare, or the environment, and as authorized by applicable law. The Department reserves its rights to take any enforcement action authorized by law with respect to this Certification and/or the System against the Owner or operator of the System and/or the Company.