



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:

F.R. Mahony & Associates
273 Weymouth Street
Rockland, MA 02370

Trade name of technology and models: Amphidrome and Integral Amphidrome (hereinafter the "System"). Schematic Drawings illustrating the System and an Inspection Checklist are attached and are part of this Certification.

Transmittal Number: W106451
Date of Issuance: October 4, 2007

Authority for Issuance

Pursuant to Title 5 of the State Environmental Code, 310 CMR 15.000, the Department of Environmental Protection hereby issues this Certification for General Use to: F.R. Mahony & Associates, 273 Weymouth Street, Rockland, MA 02370 (hereinafter "the Company"), certifying the System described herein for General Use in the Commonwealth of Massachusetts. Sale and use of the System are conditioned on and subject to compliance by the Company and the System owner with the terms and conditions set forth below. Any noncompliance with the terms or conditions of this Certification constitutes a violation of 310 CMR 15.000.

Glenn Haas, Acting Assistant Commissioner
Bureau of Resource Protection

October 4, 2007
Date

I. Purpose

1. The purpose of this Modified Certification is to allow the use of the System in Massachusetts on a General use basis.
2. With the necessary permits and approvals required by 310 CMR 15.000, this Certification authorizes the installation and use of the System in Massachusetts.
3. The System may be installed on all facilities 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 DEP if DEP approval is required by 310 CMR 15.000. This Certification does not allow 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.
4. The System is approved for use at facilities with a maximum design flow less than 10,000 gallons per day (GPD).

II. Design Standards

1. The System is a biological wastewater treatment system that utilizes a Submerged Attached-Growth Sequencing Bioreactor (SAGSB). The System may consist of an anoxic/equalization tank, which must comply with the design criteria set forth below, and either a single reactor which alternates between aerobic and anaerobic conditions, and a clear well or a single reactor installed in a clear well. Wastewater passes from the anoxic/equalization tank, through a granular biological filter and into the clear well. A pump is then used to reverse the flow back to the anoxic/equalization tank. This cycle is repeated multiple times and the effluent is discharged to the soil absorption system. Schematics of the Systems are attached to and are part of this Approval.
 - i The anoxic/equalization tank shall be designed to have a total working volume equal to one day's design flow plus the volume of one backwash.
 - ii The residual volume (i.e. volume below the effluent invert) shall equal one day's design flow.
 - iii The height of the effluent pipe from the bottom of tank shall be at least 4 ft.
 - iv The effluent tee shall not be more than 1 ft. below the effluent invert.
 - v The volume between the influent invert and the effluent invert (i.e. fluctuating volume) must be equal to the volume required for one backwash.
 - vi The influent invert shall be placed as close to the top of the tank as possible.

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- vii The influent and effluent tees shall be located under the access lids or manholes, and positioned at opposite ends of the tank.
 - viii The risers of the tees shall extend into the manhole risers to ensure The risers are above the high water level.
 - ix A minimum 1,500-gallon anoxic/equalization tank is required.
 - x The requirements in 310 CMR 15.223(1) and 310 CMR 15.224 do not apply to the System.
2. The System shall be installed in series between the building sewer and the soil absorption system of a standard Title 5 system constructed in accordance with 310 CMR 15.100 – 15.279, subject to the provisions of this Approval.
 3. New Construction less than 2000 gpd: For residential Systems less than 2,000 GPD, the SAS size required by 310 CMR 15.242, LTAR: Effluent Loading Rates, can be reduced by 50 percent provided that the facility is not located in an area described in Section I, item 3 and complies with the requirements of Section IV item 2.
 - a. Systems with a 50 percent reduced SAS shall include an effluent pressure distribution system designed in accordance with Department guidance.
 2. New Construction 2,000 gpd to less than 10,000 gpd and all non-residential facilities: No reduction in SAS field size is allowed under this approval.
 3. Access shall be provided to all System tanks and to the septic tank in accordance with 310 CMR 15.228 (2). The septic tank shall have at least three manholes with impermeable covers of durable material. Two manholes, over the inlet and outlet, shall have a minimum opening of 20 inches. All access ports and manhole covers shall be secure removable impermeable covers of durable material installed and maintained at grade to allow for maintenance of the System.
 4. The control panel including alarms shall be mounted in a location accessible to the operator of the System.

III. General Conditions

1. The provisions of 310 CMR 15.000 are applicable to the use and operation of this System, except those that specifically have been varied by the terms of this Certification.
2. 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. 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.

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3. 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.
4. In accordance with applicable law, the Department or the local approving authority may require the owner of the System 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.
5. 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 pursuant to 310 CMR 15.004.
6. Design, installation and operation 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 is certified only in connection with the discharge of sanitary wastewater. Any non-sanitary wastewater generated or used at the facility served by the System shall not be introduced into the System and shall be lawfully disposed of.
2. New Construction less than 2000 gpd: For residential Systems with a design flow less than 2000 GPD, the System owner initially shall size the SAS in accordance with 310 CMR 15.242 to demonstrate that a conventional Title 5 SAS, including a reserve area, can be installed on the site. The System owner can then reduce the size of the SAS as calculated in 310 CMR 15.242 by 50 percent. No additional reduction in sizing based on innovative technology shall be taken. The total area required in the initial sizing, which must include the area designated for the System and the primary and reserve area, shall be preserved and the System owner shall ensure that no permanent structures, excluding the System and 50 percent reduced SAS, or other structures are constructed on that area and that the area is not disturbed in any manner that will render it unusable for future installation of a conventional Title 5 SAS.
3. Operation and Maintenance agreement:

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- a Throughout its life, the System shall be under an operation and maintenance (O&M) agreement. No O&M agreement shall be for less than one year.
- b No System shall be used until an O&M agreement is submitted to the local approving authority which:
 - i Provides for the contracting of a person or firm trained by the Company as provided in Section V (5) and competent in providing services consistent with the System's specifications, with the operation and maintenance requirements specified by the Company and the designer, and with any specified by the Department;
 - ii Contains procedures for notification to the Department and to the local approving authority within five days of a System failure, malfunction or alarm event and for corrective measures to be taken immediately;
 - iii Provides the name of an operator, which must be a Massachusetts certified operator as required by 257 CMR 2.00 of an appropriate grade that will operate and monitor the System. The operator must operate and maintain the System at least every three months and anytime there is an alarm event.
 - iv For residential Systems installed with a 50 percent reduced SAS the operator must inspect, field test and maintain the System at least every six months in accordance with the Departments policy and anytime there is an alarm event. For residential Systems installed with a standard sized SAS the inspections and field testing shall be conducted at least once per year and anytime there is an alarm event. The Department's policy is titled *Inspection and Sampling in Title 5 I/A Single Family Home Remedial and General Use Treatment Systems with Design Flows less than 2000 GPD*, dated January 1, 2006, and can be obtained at <http://mass.gov/dep/water/laws/policies.htm#t5pols> (Title 5/Septic Systems Policies).
 - v For all other Systems the operator must inspect, field test and maintain the System at least every three months and anytime there is an alarm event.
3. The System owner shall at all times have the System properly operated and maintained in accordance with this Certification, the designer's operation and maintenance requirements and the Company's approved procedures. The System owner shall notify the Department and the local approving authority, in writing, within seven days of a change in the operator.
4. The System owner shall provide a copy of this Certification, prior to signing of a purchase and sales agreement for the facility served by the System or any portion thereof, to the proposed new owner.

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5. The System owner shall furnish the Department any information that the Department requests regarding the System, within 21 days of the date of receipt of that request.
6. By September 30th of each year, the System owner shall submit to the Department and the local approving authority an O&M and technology checklist, completed by the System operator for each inspection performed during the previous 12 months. Copies of the checklists are attached to this Certification.

V. Conditions Applicable to the Company

1. By January 31st of each year, the Company shall submit to the Department a report signed by a corporate officer, general partner, or Company owner that contains information on the System for the previous calendar year. The report shall state: the number of units of the System sold for use in Massachusetts during the previous year; the address of each installed System, the owner's name and address, the type of use (e.g. residential, commercial, school, institutional) and the design flow; and for all systems installed since the first issuance of Certification for General Use, all known failures, malfunctions, and corrective actions taken and the address of each such event.
2. The Company shall notify the Director of the Wastewater Management Program at least thirty days in advance of the proposed transfer of ownership of the technology for which this Certification is issued. Said notification shall include the name and address of the proposed owner containing a specific date of transfer of ownership, responsibility, coverage and liability between them. All provisions of this Certification applicable to the Company shall be applicable to successors and assigns of the Company, unless the Department determines otherwise.
3. The Company shall develop and submit to the Department within 60 days of the effective date of this Certification: 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 essential to consistent successful performance of the installed Systems.
4. The Company shall make available, in printed and electronic format, the referenced procedures and protocol in paragraphs 3 directly above to owners, operators, designers and installers of the System.
5. 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 January 31st and make the list known to local approving authorities, the Department and to users of the technology.

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6. The Company shall furnish the Department any information that the Department requests regarding the System within 21 days of the date of receipt of that request.
7. The Company shall include copies of this Certification and the procedures described in Section V (3) with each System that is sold. In any contract executed by the Company for distribution or re-sale 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 Sections V (3).
8. The Company shall comply with 310 CMR 15.000 and all Department policies and guidance that apply and as they may be amended from time to time.

VI. 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
One Winter Street - 5th floor
Boston, Massachusetts 02108

VII. Rights of the Department

1. The Department may suspend, modify or revoke this Certification for cause, including, but not limited to, noncompliance 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.