



State of Vermont
Department of Environmental Conservation
Drinking Water & Groundwater Protection Division
1 National Life Drive, Main 2
Montpelier, Vermont 05620-3521

Agency of Natural Resources

www.anr.state.vt.us/dec/ww/wwmd.cfm

Innovative/Alternative System Approval

General Use per §1-1001 of the
Wastewater System and Potable Water Supply Rules, effective September 29, 2007

BIO-MICROBICS MicroFAST® and RetroFAST®

2012 Renewal
2004 Original Approval
Approval Number 2004-01

Vendor Information

Bio-Microbics, Inc.
8450 Cole Parkway
Shawnee, KS 66227

Technology Name

MicroFAST®
RetroFAST®

Contact

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Technology Type

Fixed Activated Sludge
Treatment System

Expiration Date

December 1, 2014

Approval

The Bio-Microbics FAST® Model Numbers: 0.5, 0.75, 0.9, 1.0, 1.5, 3.0, 4.5 and 9.0; and RetroFAST® 0.25 and 0.375 may be used as part of a subsurface wastewater disposal system approved under the Wastewater System and Potable Water Supply Rules, effective September 29, 2007 (Rules), under the following conditions:

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1. The treatment units must be installed and operated as described in the Innovative/Alternative System application package filed with the Agency of Natural Resources (Agency) on March 1, 2003 and June 5, 2003; the MicroFAST® drawings and specifications dated 2012 at <http://www.biomicrobics.com/products/fast-wastewater-treatment-systems/microfast/>; the RetroFAST® drawings and specifications dated 2012 at <http://www.biomicrobics.com/products/fast-wastewater-treatment-systems/retrofast-wastewatertreatment-systems/>; and with the site-specific installation and operating instructions available at both sites.
2. Unit sizing must be in accord with the technical information submitted with the Innovative/Alternative System application package on March 1, 2003 and June 5, 2003, and with the RetroFAST® Spec Sheet. The sizing shall be based on the calculated design flow per §1-808 of the Rules.
3. This approval is based on treatment only of domestic wastewater of low and moderate strength as specified in §1-915(a)(1)(C) & (D) of the Rules. Systems to treat higher strength wastewater may be approved on a case by case basis.
4. The system may be used for both new and replacement systems.
5. All effluent from a Bio-Microbics FAST®, or RetroFAST® unit shall be discharged to a filtrate disposal system that conforms to the requirements of §1-916 of the Rules. If the rules are revised during the term of this approval, this approval shall be revised as needed to conform to the revisions.
6. Detailed operating instructions shall be provided in writing to the owner/operator.
7. The Vendor shall have an inventory of replacement parts available locally or available for delivery within 24 hours.
8. The Vendor shall provide a copy of this approval letter to any landowner who is a prospective purchaser of a Bio-Microbics FAST®, or RetroFAST® unit prior to the sale of the unit and prior to the filing of any application for a site-specific approval by the Agency for the purchaser's property. The application filed with the Agency shall include the landowner's written acknowledgement of this approval letter. Prior to any sale of the property or completion of a sales agreement to sell the property, a copy of the site-specific permit shall be provided to the prospective purchaser. The owner of record shall notify the Vendor of the sale, and provide contact information for the new owner.
9. The owner of a property where a Bio-Microbics FAST®, or RetroFAST® unit has been installed shall have a valid maintenance contract in force at all times. The minimum length of any contract shall be for a period of two years. A copy of the initial and each succeeding contract shall be submitted to the appropriate Regional Environmental Office of the Agency and to the Vendor. Maintenance shall be performed by, or shall be supervised by, a Licensed Class 1 Designer or a

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Licensed Class B Designer, approved by the Vendor or their representative, who shall provide written inspection reports detailing the maintenance performed on the specific system; any problems that have occurred since the previous inspection; any modifications made to the system; the date of the inspection, and any work required to ensure the system operates in compliance with this approval. The annual inspection reports shall be provided to the Agency's Main Office (Attention Innovative/Alternative Program Manager) and the Regional Office that issued the Wastewater System and Potable Water Supply Permit.

The inspection shall be performed in accord with the manufacturer's Operation and Maintenance requirements submitted as part of the Innovative/Alternative System application package or with the MicroFAST® or RetroFAST® Manuals. If at any inspection the effluent is cloudy or pungent smelling, a sample shall be collected and tested for BOD and TSS. The results of any testing shall be submitted with the annual inspection report.

10. The first inspection shall be completed no later than 3 months after placing the unit in service. The second inspection shall be completed no later than 12 months after placing the unit in service. Subsequent inspections shall be completed at least once per year based on the date when the unit was first placed in service. More frequent inspections or additional testing, required by the manufacturer to ensure proper functioning of the system, shall be conducted in accordance with the manufacturer's specifications. All reports shall be filed electronically with the Agency's Main Office (Attention Innovative/alternative Program Manager), appropriate Regional Environmental Office of the Agency, the Vendor and the landowner.
11. This approval is based on information submitted by the Vendor indicating that the specified models will routinely provide effluent with no more than 30 mg/l of BOD₅ and no more than 30 mg/l of TSS.
12. When a project is subject to the Rules, site-specific permission for the use of this product is required in the form of a Wastewater System and Potable Water Supply Permit.
13. A site-specific permit for the use of this product may be revoked if the unit fails to function properly or if the property owner fails to have a valid contract for the required maintenance and inspection of the unit. In the case of the unit failing to function properly, revocation of the permit will require that the use of the building be discontinued unless another wastewater disposal system is installed based on prior written approval by the Agency.
14. This approval is not a representation or guarantee of the effectiveness, efficiency or operation of a Bio-Microbics FAST®, or RetroFAST® unit.
15. For commercial wastewater applications, the Vendor (Manufacturer) shall provide a letter to the Designer, the Owner, and the Agency's Central Office and the

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appropriate Regional Office certifying the use of this technology for the proposed application and site.

Vendor Requirements

1. The Vendor (*aka* Manufacturer) shall submit an annual report electronically to both the Central Office (Attention Innovative/Alternative Program Manager) and Regional Offices of the Agency by April 1 of each year containing the following information for the 12 month period ending December 31 of the previous year:
 - a. New permitted systems installed in Vermont during the previous calendar year shall include:
 1. Assigned Wastewater Permit Number;
 2. Name of Current Landowner;
 3. Address of Current Landowner;
 4. Name of Designer Providing the Installation Certification;
 5. Name of Installer.
 - b. Existing Systems with known change in ownership shall include name and mailing address of the current landowner and the Wastewater System and Potable Water Supply Permit Number.
 - c. Each annual report shall include all known system problems, damages and/ or failures including:
 1. Description of Issues;
 2. Potential/Known Causes of Problems;
 3. System Operability;
 4. Recommended Repair/Remediation;
 5. Date(s) of Repair/Remediation;
 6. Effectiveness.

Note: Repairs that are not defined by Rule as “minor repair” require approval by the Division prior to making the repair.
 - d. Names of Designers and Installers Trained by the Vendor and/or the Vendor’s representative.
2. The Vendor shall have an inventory of replacement parts available locally or available for delivery within 24 hours.

Design and Review Conditions

The following conditions will be used by the Department in reviewing permit applications that include a Bio-Microbics FAST®, or RetroFAST® unit:

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Equipment

- Bio-Microbics FAST® Model Numbers: 0.5, 0.75, 0.9, 1.0, 1.5, 3.0, 4.5, 9.0, and RetroFAST® 0.25 and 0.375.

Design and Application

- The treatment unit shall be installed in accordance with the approved plans and the manufacturer's recommendations. The Designer shall assure that the system will properly function in all seasons.
- The Designer must assess the structural needs of the unit for the specific application site and place the requirements on the design plans.
- The Designer must determine the type of backfill required and any necessary placement specifications.
- The Designer must assess the ventilation path for the particular application and make any necessary provisions to assure proper flow and control of odor emissions.
- The Designer shall consult with the Vendor for proper sizing and include in the design a septic tank effluent filter with easy access for inspection and cleaning.
- The Designer must assure routine access to the unit as well as the settling tank, control panel, blower, any pumps, distribution boxes (for sampling), and effluent filters.
- The Designer must address flotation issues if the seasonal high water table will be above the bottom of any of the tanks.

Installation Inspection

- The treatment unit shall be set up under the instruction and guidance of an installer/inspector trained by the Vendor (*aka* Manufacturer).
- The treatment unit shall be inspected by a Licensed Class 1 Designer or a Licensed Class B Designer, approved by the Vendor, after construction of the unit and installation of the tanks before backfilling, and after backfilling and grading is complete. The inspection shall include checking for an adequate structural foundation to support the unit, checking for levelness of the tanks, and inspecting for damage and proper assembly.
- Before backfilling, the unit and tankage shall be tested for watertightness by filling the unit or tank with water to a point that is above all below grade openings and holding it at a constant level for 24 hours; there shall be no

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measurable leakage. During the test the entire unit and tanks shall be inspected for visible leaks. Should the unit or tanks fail the test they may be repaired and retested. The testing and repairs shall be conducted under the direction and in the presence of the inspecting Licensed Designer.

- The Designer shall inspect all piping for proper installation and watertightness before backfilling.
- The Licensed Class 1 Designer or Licensed Class B Designer, approved by the Vendor to conduct the inspections, shall provide a letter certifying that the system is correctly installed as well as the results of watertightness testing. This letter shall be submitted electronically to the Vendor and both the Central Office (Attention Innovative/Alternative Program Manager) and pertinent Regional Offices of the Agency.

Start-up

- Start-up of the system and initial operational checks shall be conducted by an installer/inspector trained by the Vendor (*aka* manufacturer), who shall submit a report to the owner, the Vendor, and to the inspecting Licensed Class 1 Designer or Licensed Class B Designer indicating any problems encountered, their resolution, and affirmation that the system is operating as intended.

Operational Maintenance and Inspection

- The owner shall have a valid maintenance contract in force at all times. The minimum length of any contract shall be for a period of two years. A copy of the initial and each succeeding contract shall be submitted to the appropriate Regional Environmental Office of the Agency and to the Vendor. Maintenance shall be performed by, or shall be supervised by, a Licensed Class 1 Designer or a Licensed Class B Designer, approved by the Vendor, who shall provide written inspection reports detailing the maintenance performed on the specific system, any problems that have occurred since the previous inspection, any modifications made to the system, the date of the inspection, the results of all testing, and any work required to ensure the system operates in compliance with this approval.

The inspection shall be performed in accord with the manufacturers Operation and Maintenance Manual submitted as part of the Innovative/Alternative System application package. If at any inspection the effluent is cloudy or pungent smelling, a sample shall be collected and tested for BOD and TSS. The results of all testing shall be submitted to the Agency and to the Vendor, with the annual inspection report.

- The first inspection shall be completed no later than 6 months after placing the system in service.

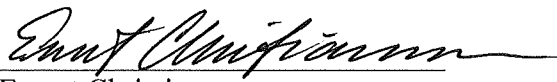
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- The second inspection shall be completed no later than 12 months after placing the system in service.
- Subsequent inspections shall be completed at least once per year based on the date when the system was first placed in service. More frequent inspections or additional testing, required by the manufacturer to ensure proper functioning of the system, shall be conducted in accordance with the Vendor's specifications.
- All reports shall be filed electronically with the Agency's Main Office (Attention Innovative/Alternative Program Manager), appropriate Regional Environmental Office of the Agency, the Vendor, and the landowner.

Permitting

- The permit shall run with the land.
- A copy of the site-specific permit shall be provided to any prospective purchaser prior to the sale.
- Each new owner of the property shall inform the appropriate Regional Environmental Office of the Agency, and the Vendor, within 30 days of the transfer of the property and include the name and mailing address of the new owner.

Effective: December 1, 2012

by: 
Ernest Christianson
Engineering Manager