



# COMMONWEALTH of VIRGINIA

Department of Health  
P O BOX 2448  
Richmond, VA 23218

M. Norman Oliver, MD, MA  
State Health Commissioner

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December 4, 2018

James Bell, Executive Vice President  
jbell@biomicrobics.com  
Biomicrobics  
8450 Cole Parkway  
Shawnee, KS 66227

VIA ELECTRONIC AND REGULAR MAIL

RE: Treatment Level 3 Approval of Biomicrobics MicroFAST Treatment Units

Dear Mr. Bell:

We have completed our review of your request for listing of Biomicrobics’s MicroFAST wastewater treatment units as “Generally Approved” under the Virginia Department of Health’s (VDH’s) GMP #2016-03 and in accordance with the Treatment Level 3 (TL-3) general approval requirements in the *Regulations for Alternative Onsite Sewage Systems* (12 VAC5-613, *AOSS Regulations*).

The complete submittal for review consisted of the following:

1. Application Checklist dated January 5, 2017
2. Memorandum of Understanding and Agreement, signed and dated March 17, 2017.
3. Technical Plan sheets for the following units submitted for approval:

Model	Design Flow, gpd (gallons per day)	Minimum Settling Zone, gallons	Minimum Treatment Zone, gallons	Minimum Total Tank Volume, gallons
0.50	500	500	750	1250
0.625	625	500	900	1400
0.75	750	500	1000	1500
0.9	900	725	1250	1975
1.5	1,500	1075	1875	2950

Notes:

1. For flows >900 gpd and ≤ 1,000 gpd, the 1.5 unit is to be used and is generally approved for TL-3. In the Commonwealth of Virginia, “General approval” is limited by statute to flows ≤ 1,000 gpd)
2. Tank volumes listed above are the minimum allowable liquid volumes of the tank zones. If used for BOD/TSS reduction only, the tank volumes listed for the settling and treatment zones may be achieved with a single tank with two separate compartments for settling and treatment or two separate tanks for settling and treatment. If total nitrogen reduction is required, then the tanks must be two compartment tanks or recycle may be required.

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4. Owner's Manual, Service Manual, and Installation Manual
5. Engineering certification that the units will achieve TL-3 standards by D. Thomas Basham, PE, LS, dated July 6, 2016.
6. Contract with third party (Nokesville Design, PLC) for field testing process.
7. Final Report dated September 27, 2018; spreadsheet with all site information and data; VDH created spreadsheet showing VDH data analysis.
8. Additional information received December 4, 2018: O&M logs, laboratory data sheets, and chain of custody forms.

The submittal was reviewed in accordance with GMP 2016-03. Twenty-three sites were included in the final evaluation. Samples were collected for four consecutive quarters, with two samples collected in the first quarter. For the first sample of the first quarter, effluent BOD<sub>5</sub> was monitored. A variance authorizing the use of CBOD in lieu of BOD<sub>5</sub> was issued on December 13, 2017 with the condition that BOD<sub>5</sub> was to be estimated from CBOD effluent data using a 1.2 multiplication factor. Effluent CBOD was monitored during the rest of the study. The four quarters of CBOD data predicted BOD<sub>5</sub> of 7.2 mg/l BOD<sub>5</sub> and 4.3 mg/l TSS when evaluated using the protocol established in GMP 2016-03. Inclusion of the first sample from the first quarter monitoring (BOD<sub>5</sub>) in the data analysis alters the results to 7.9 mg/l and 4.1 mg/l for BOD<sub>5</sub> and TSS respectively.

Based on our review, VDH approves the above listed Biomicrobics MicroFAST wastewater treatment units for listing as "Generally Approved" under GMP #2016-03 and as "Generally Approved" for TL-3 effluent treatment under the AOSS Regulations.

If you have any questions, please contact me at [Marcia.Degen@vdh.virginia.gov](mailto:Marcia.Degen@vdh.virginia.gov) or call me at (804) 387-1883.

Sincerely,



*Marcia J. Degen, Ph.D., P.E.*  
Technical Services Administrator  
Division of Onsite Sewage, Water Services,  
Environmental Engineering & Marina Programs

Cc: Lance Gregory, Division Director