

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

INNOVATIVE WASTEWATER SYSTEM APPROVAL
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INNOVATIVE NO: IWWS-2020-01

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For: BioMicrobics, Inc. MicroFAST® Models 0.5, 0.625, 0.75, 0.9, 1.5, 3.0, and 4.5
and HighStrengthFAST® Models 1.0, 1.5, and 3.0 Wastewater Treatment
Systems

Approval Date: November 2, 2020

In accordance with G. S. 130A-343, 15A NCAC 18A .1969, and 15A NCAC 18A .1970, a proposal by BioMicrobics, Inc., for approval of their onsite wastewater system utilizing the MicroFAST® and HighStrengthFAST® Treatment Systems has been reviewed, and found to meet the standards of an Innovative System when all of the following conditions are met:

I. General

A. Scope of this Innovative Approval

1. Design, installation, use, and operation and maintenance guidelines for MicroFAST® and HighStrengthFAST® Treatment Systems to meet NSF-40 or TS-I effluent standards pursuant to Rule.1970(a) Table VII.
2. Obtain field performance data from MicroFAST® and HighStrengthFAST® Treatment Systems installed on NSF-40 or TS-I sites but designed to meet TS-II effluent standards in accordance with Rule .1970(a) Table VII and PWWS-2002-01-R3.
3. Operation, maintenance, and monitoring requirements for MicroFAST® and HighStrengthFAST® Treatment Systems and associated onsite wastewater systems to ensure the treatment performance standards are met.

- B. This Innovative System Approval is applicable to MicroFAST® systems receiving domestic strength (non-industrial wastewater) influent, not exceeding the parameters in Rule .1970(b), and with a design daily flow less than or equal to 3,000 gallons per day (gpd). This Approval is also applicable to HighStrengthFAST® systems to treat wastewater from food service facilities or other commercial establishments generating similar high strength wastewater.

HighStrengthFAST® Treatment Systems may be proposed for facilities with an influent waste strength that exceeds the parameters in Rule.1970(b) by BioMicrobics, Inc. and a North Carolina Professional Engineer (PE). The State shall review and approve proposals on a case-by-case basis prior to permitting by the local health department (LHD). The design must include the proposed raw wastewater strength (e.g. BOD₅, COD, TN, TSS, fats, oils and grease, etc.), the expected organic loading rate (in pounds of BOD per day), hydraulic loading rate (in gpd) on the advanced pretreatment system, calculations, references, and any other needed information to support the proposed design.

- C. The following requirements shall be met for all sites using MicroFAST® and HighStrengthFAST® Treatment Systems
1. The system influent shall have wastewater with sufficient alkalinity to facilitate biological treatment processes.
 2. The blower must remain on at all times unless otherwise recommended by BioMicrobics, Inc.
 3. The influent shall not have a pH or toxins that significantly inhibit microbial growth. Please see the company's Owner's Manual for a list of prohibited products.
- D. MicroFAST® and HighStrengthFAST® Treatment Systems may be used for applications with a design daily flow greater than 3,000 gpd if designed by a PE and approved by the State on a case-by-case basis. Design shall be in accordance with the Large Systems State Review/Approval Process and 15A NCAC 18A .1938.

II. System Description

The MicroFAST® and HighStrengthFAST® Treatment Systems are an aerobic wastewater treatment system that utilizes a completely submerged fixed film process to treat organics and nitrify, and a passive recycle system for denitrification. Each model contains submerged media specific to the application. Microorganisms grow on the media and remove soluble contaminants from the wastewater, utilizing them as a source of energy for growth and production of new microorganisms. The inserts for the MicroFAST® and HighStrengthFAST® Treatment Systems consist of a liner around the media and an airlift to provide aeration and mixing within the confines of the liner. The area outside the liner in the septic tank remains anoxic for denitrification. A passive recirculation system moves the aerated wastewater to the outside of the liner to obtain denitrification. The aeration and circulation inside the liner are provided by a blower that pumps air into a draft tube that extends down the center of the media. Treated effluent passes out of the aerobic zone of the treatment plant through a pipe connected directly to a baffled quiescent area in the liner. For systems with a design daily flow greater than 1,000 gpd, and for any system designed to achieve TS-II, final effluent is discharged to a holding tank with an effluent filter or directly to a dosing tank meeting the capacity requirements of Section VI.A.6. For all systems designed to meet TS-II, an ultraviolet (UV) system for disinfection is provided prior to the effluent ultimately discharging to a dispersal field.

III. Siting Criteria

MicroFAST® and HighStrengthFAST® Treatment Systems and associated dispersal fields shall be sited and sized in accordance with Rule .1970 for NSF-40 or TS-I systems. Drip dispersal systems used with MicroFAST® and HighStrengthFAST® Treatment Systems shall be sited and sized in accordance with the manufacturer-specific drip approval.

IV. Dispersal Field Sizing

The dispersal field sizing criteria shall be based upon the long-term acceptance rate (LTAR) specified in the rules or the specific dispersal field system approval.

V. Special Site Evaluation

A special site evaluation may be required in accordance with Rule .1970(p) or a manufacturer specific drip approval.

VI. Design Criteria

A. The MicroFAST® and HighStrengthFAST® Treatment Systems shall be designed in accordance with the following criteria.

1. Tables 1 and 2 provide the minimum unit sizing required for the MicroFAST® and HighStrengthFAST® unit based on design flow and full time or seasonal use.

Table 1 – Sizing for Full Time Residential Installations

System Model	Design Flow Limit	Settling Zone Size (gallons)	Treatment Zone Size (gallons)	Total Tank Size (gallons)
MicroFAST 0.5	500 gpd	500	750	1,250
MicroFAST 0.625	625 gpd	500	900	1,400
MicroFAST 0.75	750 gpd	500	1,000	1,500
MicroFAST 0.9	900 gpd	725	1,250	1,975
MicroFAST 1.5*	1,500 gpd	1,075	1,875	2,950
MicroFAST 3.0*	3,000 gpd	2,145	3,750	5,895
HighStrengthFAST 1.0*	Design flow and influent BOD and TSS limits must be established on a case-by-case basis, depending upon the facility served and the desired effluent limitations. A PE shall design and BioMicrobics, Inc. shall certify the design of each project for High Strength wastewater or with a design daily flow greater than 1,000 gpd. A set of support design calculations shall be provided for each system.			
HighStrengthFAST 1.5*				
HighStrengthFAST 3.0*				
	* See Number F in Design Criteria			

Table 2 – Sizing for Seasonal Use Residential Installations

System Model	Design Flow Limit	Settling Zone Size (gallons)	Treatment Zone Size (gallons)	Total Tank Size (gallons)
MicroFAST 0.75	500 gpd	500	1,000	1,500
MicroFAST 0.9	750 gpd	725	1,250	1,975
MicroFAST 1.5	900 gpd	1,075	1,875	2,950
MicroFAST 3.0*	1,500 gpd	2,145	3,750	5,895
MicroFAST 4.5*	3,000 gpd	See Note 1	4,220	See Note 1
HighStrengthFAST 1.0*	Design flow and influent BOD and TSS limits must be established on a case-by-case basis, depending upon the facility served and the desired effluent limitations. A North Carolina Professional Engineer shall design and BioMicrobics, Inc. shall certify the design of each project for High Strength wastewater or with a design daily flow greater than 1,000 gpd. A set of support design calculations shall be provided for each system.			
HighStrengthFAST 1.5*				
HighStrengthFAST 3.0*				

	<p>Note 1: The MicroFAST 4.5 is installed in a separate tank from the Settling Zone tank. The size of the Settling Zone tank should be in accordance with State and Local rules.</p> <p>* See Number 5 in Design Criteria</p>
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2. A MicroFAST® system designed for flows less than or equal to 1,500 gpd shall utilize models of Residential Wastewater Treatment Systems (RWTS's) that have been preapproved by the State in addition to meeting the requirements listed below. For MicroFAST® systems designed for flows greater than 1,500 gpd, and for HighStrengthFAST® units, a modified state-approved septic tank shall be used sized in accordance with 15A NCAC 18A .1952(b). Tank modifications to accommodate the HighStrengthFAST® unit shall be pre-approved by the State prior to Construction Authorization (CA) issuance.
3. Grease traps or grease interceptors designed and sized in accordance with 15A NCAC 18A .1955(k) shall be required prior to HighStrengthFAST® units.
4. A vent for the MicroFAST® or HighStrengthFAST® unit must be provided. The house vents may not be the only vent.
5. MicroFAST® systems designed for flows greater than 1,000 gpd and all HighStrengthFAST® units shall be designed on a case-by-case basis by a PE. Design certification shall be provided by BioMicrobics, Inc. verifying acceptance of the PE's design criteria, plans, and component specifications. The company shall provide this written certification to the applicant for submittal with the application.
6. For MicroFAST® and HighStrengthFAST® Treatment Systems requiring a holding tank, a State approved septic tank sized at a minimum of 25 percent of the capacity required in Rule .1952(b) shall be provided after the MicroFAST® and HighStrengthFAST® treatment unit. This tank can also be used as a dosing tank as long as the 25 percent minimum liquid storage capacity is provided at all times in the tank.
7. A UV system, such as "The Disinfecter", Salcor Model 3G UV Unit, or other UV system proposed by the company and approved by the State, shall be used for systems designed to meet TS-II effluent standards. The UV system shall be rated for the discharge rate from the MicroFAST® and HighStrengthFAST® treatment unit. Audible and visible alarms for bulb failure will be provided.
8. MicroFAST® and HighStrengthFAST® Treatment Systems will utilize the BioMicrobics, Inc. control panel. The control panel is in a NEMA 4X enclosure and located within 50 feet and in line of sight of the MicroFAST® or HighStrengthFAST® treatment unit. Separate control and alarm circuits shall be provided. The Operator in Responsible Charge (ORC) of the system authorized in writing by BioMicrobics, Inc. must be able to access the panel directly on site and shall be available to the LHD with 24-hour notice in the event that the LHD needs to access the control panel.
9. All access riser hatches shall be secured by approved tamper-resistant stainless-steel bolts supplied by the manufacturer. Riser construction, attachment to tanks, and security systems shall be pre-approved by the State for septic tank and pump tank risers, as applicable.
10. Buoyancy calculations shall be completed by a PE on sites where a soil wetness condition is present within five feet of the top of the ground surface. The PE shall make appropriate design modifications as needed.
11. BioMicrobics, Inc. will utilize a device for the recording of daily water flows. The device shall provide a means for determining at least the daily, 7-day, and 30-day flow monitoring requirements of Rule .1970. This information will be stored in the data logger which will be downloaded by the ORC.
12. Dispersal field dosing tanks shall be state-approved tanks sized in accordance with Rule .1952(c).

13. Effluent from MicroFAST® and HighStrengthFAST® Treatment Systems may be discharged to a gravity dispersal field or to a dosing tank for an LPP field, drip dispersal field, or any other dispersal field type.
 14. The MicroFAST® or HighStrengthFAST® Treatment System shall not be placed in driveways, parking areas, or areas subject to vehicular traffic, unless designed by a PE and approved by the State on a case by case basis.
- B. MicroFAST® systems designed for domestic wastewater flows less than or equal to 1,000 gpd shall be designed by a BioMicrobics, Inc. authorized designer (designer) or a PE. MicroFAST® systems designed for flows greater than 1,000 gpd and all HighStrengthFAST® units shall be designed on a case-by-case basis by a PE. Design certification shall be provided by BioMicrobics, Inc. verifying acceptance of the PE's design criteria, plans, and component specifications. The company shall provide this written certification to the applicant for submittal with the application.

VII. Installation and Testing

- A. A preconstruction conference shall be required to be attended by the designer, PE (if applicable), installer authorized in writing by BioMicrobics, Inc. (installer), and LHD prior to beginning construction of the MicroFAST® and HighStrengthFAST® Treatment System.
- B. MicroFAST® and HighStrengthFAST® Treatment Systems shall be located in compliance with the horizontal setback requirements of 15A NCAC 18A .1950(a) and Rule .1970 and shall be located to prevent surface/subsurface water inflow/infiltration.
- C. All MicroFAST® and HighStrengthFAST® Treatment Systems shall be installed according to directions provided by BioMicrobics, Inc. "Installation Manual". Tankage and instructions found on BioMicrobics, Inc. CAD drawings of each system shall be used. Additionally, all MicroFAST® and HighStrengthFAST® Treatment Systems and components used with, but not manufactured by BioMicrobics, Inc., shall be installed in accordance with all applicable regulations and manufacturer instructions.
- D. All individuals/companies installing MicroFAST® and HighStrengthFAST® Treatment Systems shall be in possession of all necessary permits and licenses before attempting any portion of an installation. The company/individual must be a Level IV installer and BioMicrobics, Inc. authorized.
- E. Watertightness of the tanks shall be tested by either of the following protocols: 24-hour hydrostatic test or a vacuum test.
 1. Hydrostatic Test^{1, 2}
 - a. Temporarily seal the inlet and outlet pipes.
 - b. Fill tank with clean water to a point at least two inches above the pipe connections or the seam between the tank and the riser, whichever is highest.
 - c. Measure the water level.
 - d. Allow the tank to sit for 24 hours.
 - e. Re-measure the water level.
 - f. If the water level change is ½-inch or less or one percent of the liquid tank capacity, the tank passes the leak test.

¹ Victor D'Amato and Ishwar Devkota, *Development of Prefabricated Septic and Pump Tank Construction and Installation Standards for North Carolina*.

² National Precast Concrete Association, *Best Practices Manual Precast Concrete On-Site Wastewater Tanks*, Second Edition, October 2005, 24.

- g. If the water level change is greater than ½-inch, any visible leaks can be repaired and the tank may be topped off with water and allowed to sit for a minimum of one hour.
 - h. The tank passes the leak test if there are no visible leaks (flowing water or dripping in a steady stream) and no measurable drop in water level after one hour. Otherwise, the tank fails the leak test.
 2. Vacuum Test³
 - a. Temporarily seal the inlet and outlet pipes.
 - b. A vacuum of four (4) inches of mercury should be pulled on the tank and held for five (5) minutes.
 - c. During the testing, the tank manufacturer or their representative can seal the tank if it is found to be leaking.
 - d. If the tank is repaired, the vacuum must be brought back up to four inches and held for five minutes.
- F. The distribution of flow to the MicroFAST® or HighStrengthFAST® treatment unit and to associated treatment components shall be measured during start-up and set in accordance with the system design with start-up settings recorded.
- G. Specified site preparation steps and construction specifications for the dispersal field 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.
- H. Prior to Operation Permit (OP) issuance, the installer, PE or designer, and the ORC shall conduct a system start-up of the MicroFAST® or HighStrengthFAST® Treatment System and all associated system components. The LHD will attend and observe the system start-up. An acceptance letter from the installer and designer or PE shall be provided to the LHD prior to issuance of the OP.
- I. Each BioMicrobics, Inc. control panel shall have a label as shown in Attachment B.
- J. Prior to OP issuance, the LHD inspection shall include the following checks at a minimum:
 1. Observing positive airflow out of the vent by placing a bag on the vent and observing it filling.
 2. Confirming the blower is no more than 100 feet from the MicroFAST® and HighStrengthFAST® system.
 3. Observing the leak testing.
 4. Testing of the blower and UV system alarms.
 5. Inspecting the blower outlet pipe to ensure that the first 12 inches are galvanized steel pipe.
 6. Confirming all vents are installed.
 7. Confirming that the control panel is set for continuous blower operation.
 8. Recording all pump model numbers and time clock settings.

VIII. Operation, Maintenance, Monitoring, and Reporting

- A. MicroFAST® and HighStrengthFAST® Treatment Systems shall be classified, at a minimum, as a Type Va system in accordance with Table V(a) of 15A NCAC 18A .1961(b). Management and inspection shall be in accordance with Rules .1961 and .1970.

³ National Precast Concrete Association, *Best Practices Manual Precast Concrete On-Site Wastewater Tanks*, Second Edition, October 2005, 24.

- B. All MicroFAST® and HighStrengthFAST® Treatment Systems require an operation and maintenance agreement between the system owner and BioMicrobics, Inc. or its authorized representative, as per Rule .1970. The ORC shall be a certified subsurface operator. Systems with a design daily flow greater than 1,500 gpd shall have an ORC who is a certified subsurface operator and has a Grade II biological wastewater treatment certification. The ORC shall be either an employee of BioMicrobics, Inc. or authorized in writing by BioMicrobics, Inc. to operate and maintain the system. The operator must have the proper equipment and training to access and program the control panels on site.
- C. HighStrengthFAST® units shall have a minimum frequency inspection of monthly.
- D. All MicroFAST® and HighStrengthFAST® Treatment Systems shall be maintained according to the latest version of BioMicrobics, Inc. O&M manual.
- E. The ORC report shall be submitted to the LHD within 30 days of the date of the system inspection and shall include all the information specified in VIII.G at a minimum.
- F. At each MicroFAST® and HighStrengthFAST® Treatment System inspection the ORC shall, at a minimum, observe, monitor, and record:
1. Blower operation making sure to take note of unusual aspects involving sound, function, and physical appearance of parts such as the steel inlet air filters and activity such as the air flow rate.
 2. Inspection of the MicroFAST® and HighStrengthFAST® chamber to confirm wastewater is being aerated when the blower is on and the wastewater level is approximately two inches above the media when the blower is off.
 3. Clarity of effluent (e.g. color and evidence of suspended solids).
 4. Wastewater levels in all the tanks.
 5. Sludge and scum levels in all the tanks.
 6. Watertightness of tanks, risers, and pipe connections at the tanks.
 7. Operation of pumps, floats, valves, electrical controls, and alarms, including record of alarms since last visit and troubleshooting actions.
 8. Average and maximum readings for 7-day and 30-day flows.
 9. Dispersal field pump delivery rate (drawdown test), determination of the average pump run time, and dispersal field dosing volume.
 10. 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 area.
 11. Sample of MicroFAST® or HighStrengthFAST® system influent and effluent, as required.
- G. The ORC shall also conduct other observations, measurements, monitoring, and maintenance activities as specified in the OP and as recommended by the manufacturer.
- H. Sampling
1. All sampling shall be done in accordance with Rule .1970(n)(3) and (5). MicroFAST® and HighStrengthFAST® Treatment Systems shall be sampled annually. Systems with a design daily flow greater than 1,500 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 effluent CBOD₅ and NH₄-N and shall be tested in the field for turbidity. Influent for all systems shall be tested for BOD₅ and TKN. For systems designed to meet TS-II standards, effluent shall also be tested for TN and fecal coliform.
 3. Additional sampling of effluent or influent may be determined to be necessary by the ORC

- during a system inspection to assist with troubleshooting or to verify system performance.
4. Influent samples shall be taken at a point prior to entry into the MicroFAST® or HighStrengthFAST® Treatment System. This can be done using a sludge judge to take the sample from the inlet of the first settling tank and collecting the sample below the scum layer and above the settled solids. Care shall be taken to collect the sample with as little solids as possible.
 5. Effluent samples shall be collected from a free-flowing effluent stream after the final settling chamber and UV system or from an approved sampling port immediately following the final settling chamber and UV system, as applicable. Effluent samples for drip dispersal systems or other pressurized dispersal systems shall be collected from a tap on the dispersal field force main (prior to spin filters for drip systems). The preferred location of the tap is in the pump tank discharge assembly after the UV system. The sampling shall not commence until at least 30 seconds of continuous discharge through the sample tap has been completed.
 6. Adjustments in the monitoring schedule and number of parameters sampled may be proposed in writing by BioMicrobics, Inc. pursuant to Rule .1970(n)(3)(B) or (C). Approval decisions regarding adjustments of sampling/monitoring frequencies and parameters will be provided in writing by the State.
 7. Flow will be measured by using a control panel that includes a data logger to measure periodic and cumulative effluent pump run times for systems that incorporate a pressurized effluent dispersal system. Where effluent flows are by gravity, the method of flow measurement will be done on a case-by-case basis with approval by the State.
- I. Notification and Performance of Maintenance and Repairs
1. The ORC shall alert the LHD, BioMicrobics, Inc., 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 replacement, and/or adjustments to any other system component.
 2. 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 obtained during system start-up. The ORC shall notify the system owner, BioMicrobics, Inc., and the LHD whenever the pump delivery rate efficiency or average pump run times are not within 25 percent of the initial measurements.
 3. Tanks will be pumped as needed upon ORC recommendation and in accordance with the BioMicrobics, Inc. Treatment System Operation and Maintenance Manual. At a minimum, the septic tank will be pumped whenever the solids level exceeds 25 percent of the tank's total liquid working capacity or the scum layer is more than four inches thick.
 4. The tanks shall be pumped by a permitted septage management firm, and the septage handled in accordance with 15A NCAC 13B .0800.
 5. The ORC shall notify the LHD, BioMicrobics, Inc., and the system owner in writing whenever repairs are indicated. All maintenance activities shall be recorded in the ORC reports provided to the system owner, BioMicrobics, Inc. and the LHD.
- J. Reporting
- The ORC shall provide a complete written report to the system owner, BioMicrobics, Inc., and the LHD within 30 days of each inspection. At a minimum this report shall specify:
- a. The date and time of inspection.
 - b. System operating conditions according to VIII.D, VIII.E, and VIII.F.
 - c. Results from laboratory analysis of influent and effluent samples.
 - d. Maintenance activities performed since the last inspection report.
 - e. An assessment of overall system performance.

- f. A list of any improvements or maintenance needed.
- g. A determination of whether the system is malfunctioning, and the specific nature of the malfunction.
- h. Any changes made in system settings based on recommendations of the manufacturer.

IX. Responsibilities and Permitting Procedures

- A. Prior to the installation of a MicroFAST® and HighStrengthFAST® Treatment System at a site, the owner or owner's agent shall fill out an application at the LHD for the proposed use of this system. After the LHD conducts a soil and site evaluation, the LHD may issue an Improvement Permit (IP) or a CA or amend a previously issued CA allowing for the use of the MicroFAST® or HighStrengthFAST® Treatment System.
- B. The IP and CA shall contain all conditions the site approval is based upon, including the proposed use of the Innovative System. The OP will include all conditions specified in the IP and CA.
- C. When a special site evaluation is required pursuant to Rule .1970(p)(1) or a drip approval, as applicable, 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 Rule .1970(p)(2) and "Requirements for Submittals of Soil Reports and Pretreatment and/or Dispersal System Designs". The LHD may request the assistance of their Regional Soil Scientist in evaluating this report prior to IP issuance.
- D. The MicroFAST® and HighStrengthFAST® Treatment Systems shall be designed by one of the following: designer or a PE. Systems over 1,000 gpd, designed to treat High Strength wastewater, or as otherwise required for drip dispersal systems shall be designed by a PE. All design submittals shall be accompanied by a certification letter from BioMicrobics, Inc. or its North Carolina authorized representative.
- E. Prior to issuance of a CA for a MicroFAST® and HighStrengthFAST® Treatment System, a design submittal prepared by a designer or PE shall be submitted for review and approval by the LHD. The design submittal shall include the information specified in "Requirements for Submittals of Soil Reports and Pretreatment and/or Dispersal System Designs".
- F. It is recommended that local authorized environmental health practitioners attend a design training session offered by the manufacturer/authorized representative prior to permitting the system. Also, at the request of the LHD, a Regional Engineer will review the design.
- G. The designer shall certify in writing that the system was installed in accordance with the approved design prior to OP issuance.
- H. A PE shall certify in writing that a system designed by a PE was installed in accordance with the approved plans and specifications prior to OP issuance.
- I. For sites required to be evaluated by an LSS or Licensed Geologist (LG) (see Section V and IX.C), the LHD may specify as a condition on the IP and CA that a 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/installation requirements prior to the OP issuance.
- J. The ORC shall be present during the system start-up prior to the issuance of the OP. The ORC shall be certified as a subsurface operator and authorized BioMicrobics, Inc. system operator.

For systems with a design flow greater than 1,500 gpd, the ORC must also have a Grade II biological wastewater treatment certification.

- K. The LHD issues the OP after the following:
1. Field verification of installation completed;
 2. Receipt of written documentation from the designer or PE, as applicable, 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 ORC.
- L. On an annual basis, BioMicrobics, Inc. shall provide a report to the On-Site Water Protection Branch including the number and location of new system installations during the previous year, and effluent data and operator reports for each operational MicroFAST® and HighStrengthFAST® Treatment System installed in North Carolina under this Innovative Approval. Effluent data should be compiled and submitted electronically. If available, a web-based system for data posting of laboratory results should be utilized. These reports shall provide information to the State based upon the monitoring data and observations made from the Innovative systems installed pursuant to this Approval. This should include an assessment of system performance in relation to the established treatment performance standards; an assessment of physical and chemical properties of the materials used to construct the system, in terms of strength, durability, and chemical resistance to loads and conditions experienced; recommended areas of applicability for the system; and any conditions and limitations related to the use of the system. The report shall also include an updated list of authorized designers, installers, and ORCs.

X. Repair of Systems

The provisions of Rule .1961(l) shall govern the use of the MicroFAST® and HighStrengthFAST® Treatment System for repairs to existing malfunctioning wastewater systems.

Approved By: _____ Date: _____