

# Wastewater Treatment and Dispersal Operating Permit

Operating Permit No. 4

## Example Bio-Microbics MicroFAST Model 4.5 (with Chlorine Disinfection) Treatment Level A

### Facility Information

Permittee and Business name: George Hamilton (Blue Water Resort) Phone number: 218-852-9583  
Mailing address: 9346 Sand Lake Road  
City: King City State: MN Zip code: 12345  
Property ID number (GPS location): PIN = 10693064

King County authorizes the Permittee to operate a wastewater treatment and dispersal system at the address named above in accordance with the requirements of this operating permit. The attached Management Plan is hereby incorporated as part of the requirements of this operating permit.

Issuance date: 10/29/10 Expiration date: 10/29/11  
System type: Type IV Treatment level: Level A  
System design flow: 4200 gpd Residential/Commercial: Commercial; Year-round resort, cabins only  
System components: Septic and pump tanks at each cabin; Stilling tank, MicroFAST Model 4.5 (4500 gpd unit); Norweco chlorine tablet feeder disinfection device, 500 gal. chlorine contact tank; Norweco dechlorination tablet feeder, 1000 gal. pump tank; 1800 ft drainfield (in 3 zones), pressure distribution network; 12 inch soil separation

### Monitoring Requirements (also refer to Attachment 1 for additional testing requirements)

Parameter	Effluent limits	Frequency	Location
Design flow (gpd)	4200 gpd	Per Management Plan	Event counter and running time clock
Average flow (gpd)	2600 gpd		
CBOD <sub>5</sub> (mg/L)	15 mg/L	Per Management Plan	End of treatment device
TSS (mg/L)	15 mg/L		
Fecal Coliform bacteria (cfu/100mL)	1,000 colony forming units/100 ml	Sample at least bi-monthly, six times per year as follows:	Chlorine contact tank  Pump tank to drainfield
Total Residual Chlorine (TRC) after chlorination tablet feeder, in chlorine contact tank	> 1 mg/L TRC	1) before chlorine tablets are replenished, and	
Total Residual Chlorine (TRC) after dechlorination tablet feeder, in pump tank	< 0.1 mg/L	2) before sodium bisulfate tablets are replenished	
Operational Field Tests: Temperature, Dissolved Oxygen and pH		Per Management Plan	The treatment device itself or at the end of treatment device
Ponding/Surfacing in soil treatment	Minimal trench ponding; no surfacing	Quarterly (4 times per year)	Drainfield trenches

### Monitoring Requirements Comment Field

After the first operating permit issuance, fecal coliform bacteria testing could be reduced if the Total Residual Chlorine (TRC) of greater than 1 mg/L consistently tests fecal coliform bacteria levels at or near the level of detection.

# Maintenance Requirements

Maintenance requirements shall be performed as specified in the Management Plan as prepared by the system's Advanced Designer.

System component	Maintenance	Frequency
Individual septic tanks	Pump to remove solids as needed	Per Management Plan or Use
Stilling tank; MicroFAST treatment product	Per FAST maintenance documents	Every four months; not less than Management Plan
Chlorine disinfection and dechlorination tablet feeder components	Check and clean tablet feeders; replace with approved tablets to maintain constant supply of tablets for adequate disinfection and dechlorination	Check tablet feeders every two weeks Replace tablets as needed. See Attachment 2 to the operating permit for the manufacturer suggested tablet replacement schedule
Pump tank and controls	Pump to remove solids, check floats, and controls	Every four months; not less than Management Plan
Soil treatment and dispersal	Check squirt height, clean distribution network as needed. Maintain cover. If trenches are ponded, rotate to unused trenches; let ponded trenches rest	Every four months; not less than Management Plan

## Monitoring Protocol

Any sampling and laboratory testing procedures shall be performed in accordance with the proprietary treatment product's protocol, Standard Methods, and at a Minnesota Department of Health approved laboratory. Results shall be submitted to the permitting authority at: [King County Environmental Services, 123 King Street, King, MN 12345](#) no later than sixty (60) days prior to when the permit to operate the system expires and to the proprietary treatment products manufacturer at [Bio-Microbics, Inc., 8450 Cole Parkway, Shawnee, KS 66070](#).

## Contingency Plan

In the event the wastewater treatment system does not meet required performance requirements as contained in this operating permit, the owner shall notify the local unit of government within thirty (30) days of receiving non-compliant information. The owner is responsible to obtain the services of a Minnesota Pollution Control Agency (MPCA)-licensed Service Provider or other qualified practitioner to complete the required corrective measures.

## Authorization

This permit is effective on the issuance date identified above. This permit and the authorization to treat and disperse wastewater shall expire in one year. The Permittee is not authorized to discharge after the above date of expiration. The Permittee shall submit monitoring information and forms as required by [King County Environmental Services](#) no later than sixty (60) days prior to the above date of expiration for operating permit renewal. This permit is not transferable.

The owner is required to obtain the services of a Minnesota Pollution Control Agency (MPCA) licensed and [Bio-Microbics](#) trained 1) Service Provider to provide ongoing system operation, maintenance, and monitoring and 2) Maintainer to pump the system's sewage tanks and components. The owner is responsible to provide the name of the Service Provider business prior to the issuance of this operating permit. The owner has secured the services of [SSTS Services, Inc.](#) as the Service Provider for this system (signed Service Provider contract attached). The Service Provider is hereby authorized to provide the required monitoring data and routine maintenance service records to both the local unit of government and manufacturer of the treatment device.

If there is a change of use within the facility (change in menu, increase in facility capacity, change in water use fixtures, etc.), the permittee is required to notify [King County](#) and the Service Provider before and change occurs. Changes to the facility that could potentially impact performance of the wastewater treatment and dispersal system shall not take place until appropriate evaluation has been completed.

I hereby certify with my signature as the Permittee that I understand the provisions of the wastewater treatment and dispersal system operating permit including maintenance and monitoring requirements. I agree to indemnify and hold [King County](#) harmless from all loss, damages, costs and charges that may be incurred by the use of this system. If I fail to comply with the provisions of this operation permit, I understand that penalties may be issued. If I sell this property during the life of the permit, I will inform the new owner(s) of the permit requirements and the need to renew the operating permit.

The Operating Permit is hereby granted to: George Hamilton

Permittee  
(please print): George Hamilton

Title: Homeowner Date: 10/28/10

Signature: \_\_\_\_\_

Permitting Authority  
(please print): Alice Johnson

Title: SSTS Inspector Date: 10/29/10

Signature: \_\_\_\_\_

**Attachment 1.** Schedule for testing the performance of the chlorine disinfection components, including parameters to test for and applicable limits, location for sample collection, and the required months for sample collection and testing.<sup>1</sup>

Parameter	Limit	Location	November 2010	January 2011	March 2011	May 2011	July 2011	September 2011
Total Residual Chlorine (TRC)	> 1 mg/L TRC	After the chlorine tablet feeder and near the outlet of the chlorine contact tank	X	X	X	X	X	X
Total Residual Chlorine (TRC)	< 0.1 mg/L TRC	After the dechlorination tablet feeder (or from the pump tank dosing to soil treatment and dispersal)	X	X	X	X	X	X
Fecal coliform bacteria (cfu/100mL)	< 1,000 cfu/100mL	After the dechlorination tablet feeder (or from the pump tank dosing to soil treatment and dispersal)	X	X	X	X	X	X

<sup>1</sup> Permittee (via the Service Provider) is required to record the condition of each tablet feeder and the number of tablets used during each monitoring period; also record average daily flow for the period of time between testing events. After the first operating permit issuance, fecal coliform bacteria testing could be reduced if the TRC of greater than 1 mg/L consistently tests fecal coliform bacteria levels below 1,000 cfu/100mL.

**Attachment 2.** Manufacturer suggested replacement schedule for chlorine tablets and dechlorination tablets. Feeder sizing and estimated Blue Crystal tablet consumption to meet 1,000 CFU/100mL with an influent of secondary treated wastewater.

Daily Flow (gallons per day)	Minimum Contact Tank Size (gallons)	Recommended Tablet Feeder	Estimated Days Between Blue Crystal Disinfecting Tablet Refill (days)	Estimated Days Between Bio-Max Dechlorination Tablet Refill (days)
3,000	250	LF 3000	69	98
4,500	375	LF 3000	58	65
9,000	750	LF 4000	58	65

## Example Bio-Microbics MicroFAST Model 4.5 Treatment Level C

### Facility Information

Permittee name:  
 (and business name, if applicable): George Hamilton (Blue Water Resort) Phone number: 218-852-9583  
 Mailing address: 9346 Sand Lake Road  
 City: King City State: MN Zip code: 12345  
 Property ID number (GPS location): PIN = 10693064

King County authorizes the Permittee to operate a wastewater treatment and dispersal system at the address named above in accordance with the requirements of this operating permit. The attached Management Plan is hereby incorporated as part of the requirements of this operating permit.

Issuance date: 10/29/10 Expiration date: 10/29/11  
 System type: Type IV Treatment level: Level C  
 System design flow: 4200 gpd Residential/Commercial: Commercial; Year-round resort  
 System components: Septic and pump tanks at each cabin; Stilling tank, Model 4.5 MicroFAST (4500 gpd unit); Pump tank, 1500 ft drainfield (3 zones), pressure distribution network; 36 inch unsaturated soil

### Monitoring Requirements

Parameter	Effluent limits	Frequency	Location
Design flow (gpd)	4200 gpd	Per Management Plan	Event counter and running time clock
Average flow (gpd)	2600 gpd		
CBOD <sub>5</sub> (mg/L)	125 mg/L	Per Management Plan	End of treatment device
TSS (mg/L)	80 mg/L		
Fecal Coliform bacteria (cfu/100mL)	NA		
O&G (mg/L)	20 mg/L	Per management Plan	End of treatment device
Operational Field Tests: Temperature and Dissolved Oxygen		Per Management Plan	End of treatment device
Ponding/Surfacing in soil treatment	Minimal trench ponding; no surfacing	Quarterly (4 times per year)	Drainfield trenches

### Monitoring Requirements Comment Field

## Maintenance Requirements

Maintenance requirements shall be performed as specified in the Management Plan as prepared by the system's Advanced Designer.

System component	Maintenance	Frequency
Individual septic tanks	Pump as needed	Per Management Plan or Use
Stilling tank; MicroFAST treatment product	Per FAST maintenance documents	Every four months; not less than Management Plan
Pump tank and controls	Pump to remove solids, check floats, and controls	Every four months; not less than Management Plan
Soil treatment and dispersal	Check squirt height, clean distribution network as needed. Maintain cover. If trenches are ponded, rotate to unused trenches; let ponded trenches rest	Every four months; not less than Management Plan

## Monitoring Protocol

Any sampling and laboratory testing procedures shall be performed in accordance with the proprietary treatment product's protocol, Standard Methods, and at a Minnesota Department of Health approved laboratory. Results shall be submitted to the permitting authority at: [King County Environmental Services, 123 King Street, King, MN 12345](#), no later than sixty (60) days prior to when the permit to operate the system expire, and to the proprietary treatment products manufacturer at [Bio-Microbics, Inc., 8450 Cole Parkway, Shawnee, KS 66070](#).

## Contingency Plan

In the event the wastewater treatment system does not meet required performance requirements as contained in this operating permit, the owner shall notify the local unit of government within 30 days of receiving non-compliant information. The owner is responsible to obtain the services of a Minnesota Pollution Control Agency (MPCA)-licensed Service Provider or other qualified practitioner to complete the required corrective measures.

## Authorization

This permit is effective on the issuance date identified above. This permit and the authorization to treat and disperse wastewater shall expire in one year. The Permittee is not authorized to discharge after the above date of expiration. The Permittee shall submit monitoring information and forms as required by [King County Environmental Services](#) no later than sixty (60) days prior to the above date of expiration for operating permit renewal. This permit is not transferable.

The owner is required to obtain the services of a Minnesota Pollution Control Agency (MPCA) licensed and [Bio-Microbics](#) trained 1) Service Provider to provide ongoing system operation, maintenance, and monitoring and 2) Maintainer to pump the system's sewage tanks and components. The owner is responsible to provide the name of the Service Provider business prior to the issuance of this operating permit. The owner has secured the services of [SSTS Services, Inc.](#) as the Service Provider for this system (signed Service Provider contract attached). I hereby certify with my signature as the Permittee that I understand the provisions of the wastewater treatment and dispersal system operating permit including maintenance and monitoring requirements. I agree to indemnify and hold [King County](#) harmless from all loss, damages, costs and charges that may be incurred by the use of this system. If I fail to comply with the provisions of this operation permit, I understand that penalties may be issued. If I sell this property during the life of the permit, I will inform the new owner(s) of the permit requirements and the need to renew the operating permit. The Service Provider is hereby authorized to provide the required monitoring data and routine maintenance service records to both the local unit of government and manufacturer of the treatment device.

The Operating Permit is hereby granted to: George Hamilton

Permittee  
(please print): George Hamilton

Permitting Authority  
(please print): Alice Johnson

Title: Homeowner Date: 10/28/10

Title: SSTS Inspector Date: 10/29/10

Signature: \_\_\_\_\_

Signature: \_\_\_\_\_

## Instructions for Completing an Operating Permit

The following instructions provide an explanation for local units of government to complete the operating permit template. This is intended to provide guidance to local units of governments (LGU) in developing operating permits for Type IV and Type V systems, including both residential and commercial systems. The template could be modified for holding tanks or any other system. Since the Management Plan is considered part of the operating permit, it needs to be attached to the operating permit. A signed contract, between the owner and Service Provider, should be attached to the operating permit to help ensure the owner has made the necessary arrangements to have the system maintained and monitored.

**LGU Name, Department and Address** – fill in the name, department and address of local unit of government at the top of the operating permit.

**Wastewater Treatment and Dispersal Operating Permit No.** – assign an operating permit number to be able to track the system over the years.

**Permittee Name, Business Name, Telephone Number, and Address** – fill in the name, address and phone number of the owner. If this is a business, fill in name of the business, too.

**Property Id. Number (GPS Location)** – these are simply identifiers used by local units of government in the event the property address changes over time.

**Name of Local Unit of Government** – fill in the name of the local unit of government. This authorizes the Permittee to operate the wastewater treatment system at the address named above, according to the operating permit, attached Management Plan and contract with the Service Provider.

**Issuance Date** – fill in the date the operating permit is issued. The operating permit should not be issued until all required information is submitted.

**Expiration Date** – fill in the date when this operating permit expires. The first time an operating permit is issued to an owner, it should be issued for one (1) year. This helps ensure the owner actually does the required maintenance and monitoring during the first year. If the owner complies, the operating permit can then be issued for a longer period of time as determined by the local unit of government (typically 3 to 5 years). However, if the owner does not comply the first year, the second operating permit could, again, be issued for a period of one (1) year.

**System Type** – fill in as Type IV or Type V system. Holding tanks may also be issued operating permits (Type II system).

**Treatment Level** – specify Treatment Level A, B, C, TN or TP. Treatment Level A = Carbonaceous Biochemical Oxygen Demand, five day (CBOD<sub>5</sub>) 15 milligrams per liter (mg/L), Total Suspended Solids (TSS) 15 mg/L, Fecal Coliform Bacteria 1000 per 100 milliliter (mL); Treatment Level B = CBOD<sub>5</sub> 25 mg/L, TSS 30 mg/L, Fecal Coliform Bacteria 10,000 per 100 mL; Treatment Level C = CBOD<sub>5</sub> 125 mg/L, TSS 80 mg/L, Oil and Grease (O&G) 20 mg/L; Total Nitrogen (TN) = 20 mg/L, or Total Phosphorus (TP) = 2 mg/L.

**System Design Flow** – fill in the design flow specified on the construction permit for the system, along with the projected average daily flow for the system. Average daily flow is generally 60 to 70 percent of design flow.

**Residential/Commercial** – specify if the system is residential or commercial. You may specify additional information, such as classification of dwelling, number of bedrooms; or type of commercial establishment.

**System Components** – provide a brief description of the system components. An example would be the following: 600 gallon trash tank, 600 gallon Brand X proprietary treatment device, 1 Brand Y Ultra Violet (UV) light disinfection unit, 500-gallon pump tank, pump, floats and controls, and 250-foot shallow trenches using pressure distribution.

### Monitoring Requirements (Table)

The monitoring requirements specified in an operating permit are unique to the site and soil conditions of the property (its environmental sensitivity) and system complexity. The monitoring requirements include specific parameters to be monitored, target limits and the frequency and location of monitoring. The monitored parameters, at a minimum, would include: 1) wastewater flow - the most basic parameter to know in understanding system performance, 2) ponding in the soil treatment system and 3) surfacing of the soil treatment system. Monitoring for CBOD<sub>5</sub>, TSS, fecal coliform bacteria and nitrogen are unique to the site, its receiving environment and complexity of the wastewater system. Field tests for temperature, pH and dissolved oxygen can be performed by the Service Provider to serve as general indicators of system performance.

1. **Flow** – flow to each system needs to be determined as specified in the Management Plan or as determined by the local unit of government. Flow can be determined several ways, using water meters, event counters, and running time clocks. Telemetry can also be used and has the advantage that flow can be determined continually.

The determination for the frequency of flow measurement is done on a case-by-case basis. At first, daily flow monitoring may be needed to determine average flow and peak flows to a system. After a period of time, weekly or monthly flow determination may be acceptable. Flow determinations once a year generally provide limited information.

2. **CBOD<sub>5</sub>** – monitoring for CBOD<sub>5</sub> is not typically required for the majority of wastewater systems used for single-family homes generating typical domestic strength effluent. However, monitoring for CBOD<sub>5</sub> may be needed periodically. For example, there may be a need to audit systems as part of the product registration process in Minnesota or if the Service Provider is trying to troubleshoot a system. For commercial systems, monitoring for CBOD<sub>5</sub> is generally necessary to determine CBOD<sub>5</sub> removal efficiencies of proprietary treatment devices and/or organic loading rates to the soil's infiltrative surface.

3. **TSS** – monitoring for TSS is not typically required for most residential wastewater systems that generate typical domestic strength effluent. However, turbidity measurements may be taken in the field by Service Providers. Monitoring for TSS may be needed periodically as part of an audit process for the registration of proprietary treatment products in Minnesota. For commercial systems, monitoring for TSS may be necessary.
4. **O&G** – monitoring for Oil and Grease (O&G) is not typically required for most residential wastewater systems; however, it is an important parameter to monitor for facilities that have food preparation and service and for residences that generate high strength wastewater.
5. **Fecal Coliform Bacteria** – monitoring for fecal coliform bacteria should generally be required for systems listed as Treatment Level A and Treatment Level B systems where reduced vertical soil separation is used.
6. **Total Nitrogen and Total Phosphorus** – monitoring for Total Nitrogen (TN) may be needed in areas identified as nitrogen sensitive environments. Monitoring for Total Phosphorus (TP) may be required in phosphorus sensitive lake environments.
7. **Operational Field Tests** – these are tests performed by the Service Provider to help ‘monitor’ system performance and identify problems (troubleshooting a system). Although field tests are not a strict monitoring requirement, they are appropriate to list in the operating permit if specified in the Management Plan or in the product’s Operation and Maintenance Manual. The local unit of government will determine if the permittee is required to report field test results as part of the operating permit.
8. **Ponding/Surfacing in Soil Treatment** – all systems should be monitored periodically as specified in the Management Plan to determine extent and frequency of ponding in soil treatment systems. A check for surfacing is needed.

### Maintenance Requirements (Table)

This table lists some of the basic maintenance requirements for each major component of the wastewater system. Since you can’t possibly list all the maintenance requirements in this table, it is best to reference the Management Plan. You could also reference the proprietary products Operation and Maintenance Manual.

1. **System Component** – list each system component, including the external grease interceptor, septic tank, trash tank, surge tank, effluent screen, pump tank and controls, proprietary treatment product, disinfection device, and soil treatment and dispersal system.
2. **Maintenance** – briefly identify the maintenance requirements of each major system component. For additional information, you could also reference the proprietary product documents listed on the MPCA Web site at [www.pca.state.mn.us/programs/ists/productregistration.html](http://www.pca.state.mn.us/programs/ists/productregistration.html).
3. **Frequency** – briefly identify the frequency of maintenance as per the systems Management Plan and Operation and Maintenance Manual.

**Monitoring Protocol** – this section of the operating permit states that testing needs to be performed in accordance with approved methods and the results submitted to the: 1) local unit of government and 2) manufacturer within a specified time frame. Fill in the name and address of both entities in the spaces provided.

**Contingency Plan** – this briefly describes requirements if the system does not function as intended. The owner must notify the local unit of government within thirty (30) days of receiving non-compliant information. The Management Plan may identify some of the corrective actions required or the permittee will need to consult their Service Provider. The owner is responsible to obtain the services of a MPCA-licensed Service Provider or other qualified practitioner to complete the required corrective measures. More detail could be added here by the local unit of government.

**Authorization** – fill in the length of time of the operating permit; this is typically one to five years. Fill in the name of the local unit of government in the second blank space. Note that this permit is not transferable.

Next, fill in the name of treatment product’s manufacture; the manufacturer is required to train practitioners in servicing the registered treatment device(s). Fill in the name of the Service Provider in the next space; the owner is required to identify who the MPCA licensed Service Provider will be (in a contract). This is needed to ensure the owner has made the necessary arrangements to have the system maintained and monitored.

The Service Provider is authorized to provide monitoring data and routine maintenance service records directly to the local unit of government and to the manufacturer of the treatment product. For systems generating high strength wastewater, the following should be added to the operating permit: “If there is a change of use within the facility (i.e., change in menu, increase in food capacity, change in water use fixtures, etc.), the permittee is required to notify the local unit of government and the Service Provider before the change(s) occurs.” Changes to the facility that could potentially impact performance of the wastewater treatment and dispersal system shall not take place until appropriate evaluation has been completed.

In the final paragraph, fill in the name of the local unit of government. It contains a general indemnification statement. The permittee is reminded that this permit is not transferable and that a new operating permit would be needed by a new property owner.

**The Operating Permits Hereby Granted to** – print the name of the owner who signed the operating permit.

**Signature of Permittee (and date of signature)** – the owner signs and dates the operating permit.

**By Order of** – signature of the permitting authority, title, and date.