

## Example Single Pass Sand Filter (with 24 inches sand filter media) Treatment Level A per MPCA Design Guidance for Single Pass Sand Filters

### Facility Information

Permittee name: George Hamilton 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: 09/28/09 Expiration date: 09/28/10  
 System type: Type IV Treatment level: Level A  
 System design flow: 450 gpd Residential/Commercial: Residential, 3 bedroom, Class I  
 System components: 1500 gal. septic tank, effluent screen, 500 gal. pump tank, pumps and controls, single pass sand filter w/ 24 inches sand, 500 gal. pump tank, 200 ft drainfield w/pressure distribution, 12 inch soil

### Monitoring Requirements

Parameter	Effluent limits	Frequency	Location
Design flow (gpd)	450 gpd	Per Management Plan	Event counter and running time clock
Average flow (gpd)	270 gpd		
CBOD <sub>5</sub> (mg/L)	15 mg/L		Discharge from single pass sand filter
TSS (mg/L)	15 mg/L		Discharge from single pass sand filter
Fecal Coliform bacteria (#/100mL)	1,000 colony forming units/100 ml	Sample annually	Discharge from single pass sand filter
Total Nitrogen, Total Phosphorus (mg/L)	N/A		
Field Tests: Temperature and Dissolved Oxygen		Per Management Plan	Treatment device
Ponding/Surfacing in soil treatment	Minimal trench ponding; no surfacing	Annually	Drainfield trenches

## 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
Septic tank, effluent screen	Pump septic tank and clean effluent screen as needed	Per Management Plan or Use
Pump tank and controls	Pump to remove solids and scum, check floats and controls	Per MPCA's Recommended Standards and Guidance Document for Single Pass Sand Filters, Management Plan or Use.
Single pass sand filter	Per MPCA Single Pass Sand Filter Guidance Document. Check squirt height, clean distribution network as needed. Maintain vegetative cover.	Per Management Plan or Use
Ponding/Surfacing in soil treatment	Check squirt height, clean distribution network as needed. Maintain cover.	Every 3 years, 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](#).

## 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 non-compliance. 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(s). 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 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 Operating Permit is hereby granted to: George Hamilton

Permittee  
(please print): George Hamilton

Title: Homeowner Date: 09/27/09

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

Permitting Authority  
(please print): Alice Johnson

Title: SSTS Inspector Date: 09/27/09

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. 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, Telephone Number, and Address** – fill in the name, address and phone number of the owner.

**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 also require 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 20 mg/L; TN = 20 mg/L, or 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 ECOPOD treatment device, 1 Salcor 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. **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.
5. **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.
6. **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.
7. **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 reference the proprietary product's Operation and Maintenance Manual.

1. **System Component** – list each system component, including the septic tank, trash 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 <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 local unit of government.

**Contingency Plan** – briefly describes requirements if the system does not function as intended. The owner must notify the local unit of government when non-compliance occurs. The Management Plan may identify some of the corrective actions required or you will need to consult your 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. Next, fill in the name of the MPCA licensed Service Provider identified by the owner in contract; this is needed to help ensure the owner has made the necessary arrangements to have the system maintained and monitored.

**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.