



Flat Bed Biofilter Owner's Manual

This product is certified to CAN/BNQ 3680-600 Class B-IV and respects the requirements thereof.

Waterloo Flat Bed Model: _____
Hydraulic Capacity: _____
Serial Number: _____

Waterloo Biofilter Systems Inc.

65 Massey Road, Suite C
Guelph, ON N1H 7M6
Tel: 519-856-0757 Fax: 519-856-0759
1-866-366-4329
info@waterloo-biofilter.com
www.waterloo-biofilter.com

CAN/BNQ 3680-600



2312

Table of Contents

Table of Contents.....	2
Important Safety Warnings	3
Introduction	4
How the Waterloo Works.....	5
System Use and Operation.....	8
Alarms.....	11
Indications of a Problem.....	11
Service and Maintenance Contracts	12
FAQ	13
Limited Warranty	15

Important Safety Warnings

	There are pipes and electrical wires buried near your Waterloo Biofilter wastewater treatment system. Please contact your installer or maintenance provider before any excavation in the area surrounding your treatment tanks or leaching bed. Failure to do so may result in damage to the system and serious electrical shock!
	DO NOT attempt to service any component of the Waterloo Biofilter system yourself and DO NOT attempt to enter any of the tanks. You risk serious injury or death by doing so!
	Ensure all riser access openings have a secondary safety device installed. Ensure riser lids are properly secured down with screws at all times. If a riser lid becomes damaged it must be replaced immediately. Accidental entry into wastewater treatment tanks can result in death!
	Your Waterloo Biofilter leaching bed is designed and constructed for your unique site. Please contact your installer or maintenance provider before carrying out any landscaping or re-grading in the area surrounding your treatment tanks or leaching bed.
	Ensure that the lids on all treatment tanks are accessible to grade always. This will facilitate system inspection and maintenance. Ensure vented air lids are clear of obstructions such as mulch or vegetation to allow oxygen into your Waterloo Biofilter.
	Your Waterloo Biofilter system is a biological treatment system and its proper function is dependent on the characteristics of your wastewater. DO NOT pour anything down your drains/toilets/sinks that will not biodegrade or that will harm bacterial populations.

Introduction

Congratulations and Thank You for choosing a Waterloo Biofilter system! The Waterloo Biofilter is a passive wastewater treatment system that uses an engineered foam filtration medium to effectively and efficiently treat sewage wastewaters. Your Waterloo Biofilter system is designed to treat residential wastewater only and should only be used for this purpose.

It is important for all users of the system to follow the instructions outlined in this manual to ensure proper operation. Please have all occupants review this Owner's Manual and keep it with your household files for future reference.

Document Purpose

This Owner's Manual outlines how the Waterloo Biofilter system works, usage guidelines, and maintenance and sampling requirements. Following all guidelines herein will help ensure treatment performance and system longevity.

It is important to note that the owner is responsible for ensuring that the system is properly used according to its intended use and hydraulic treatment capacity. It is the owner's responsibility to respect all applicable local laws and regulations regarding the operation, quality of treated effluent, and discharge into the environment of this system.

How the Waterloo Works

Description

The Waterloo Biofilter is an attached growth biological trickling filter. Sanitary wastewater from the residence is collected in the pre-treatment tank where the sewage settles and anaerobic bacteria begin the treatment process. Pre-treatment tank effluent is pumped to the Waterloo Biofilter treatment unit. The absorbent foam filter medium within the treatment unit creates an ideal environment for microbial growth and attachment. Beneficial bacteria colonize the interior surfaces of the filter medium where they are protected from predators, desiccation, and freezing. These microbes degrade and oxidize organic pollutants, coliform bacteria, ammonium, and other contaminants as the wastewater is retained in the filter medium by capillarity. Air passively circulates throughout the filter media providing an aerobic treatment environment without the need for forced aeration. The Waterloo Biofilter provides both physical filtration and biological treatment of wastewater in one step – ensuring high levels of pollutants are removed before water is returned to the natural environment.



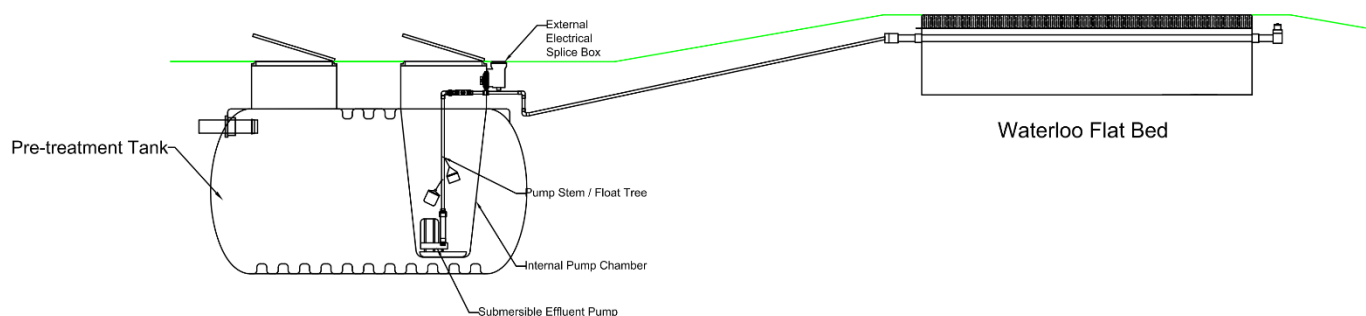
Figure 1. Waterloo Biofilter foam filter media

Treated Biofilter effluent is returned to the environment from the treatment unit to the dispersal bed.

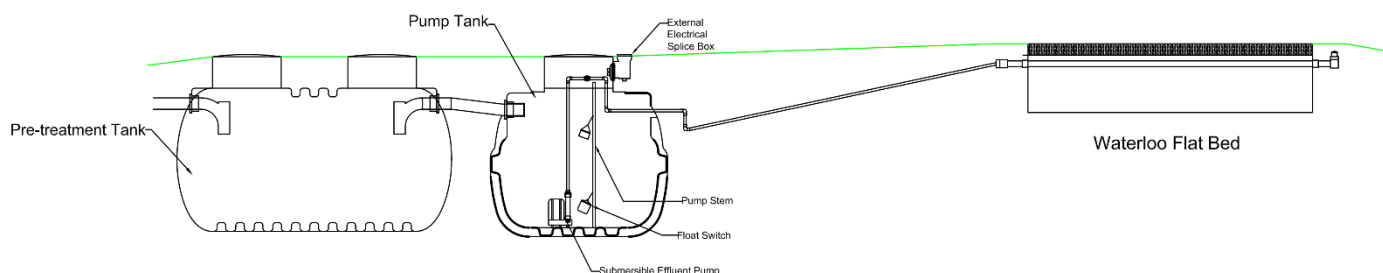
Diagram

The treatment configuration at your site will consist of either a pre-treatment tank with an Internal Pump Chamber or a pre-treatment tank with an External Pump Tank. Consult your permit or design information to confirm which configuration was specified and installed at your site.

Flat Bed Biofilter with Internal Pump Chamber



Flat Bed Biofilter with External Pump Tank



System Components

Control Panel – located outside, on a post or against your house. Controls the effluent pump.

Pre-treatment tank – buried in your yard. Can be precast concrete, plastic, or fibreglass. Provides primary treatment of wastewater and settling of solids. The tank must be pumped out when sludge occupies 1/3 of the total volume.

Pump Tank – may be incorporated into the Pre-treatment tank as an Internal Pump Chamber or a stand-alone tank buried in your yard. Contains an effluent pump, float

controls and an inline filter. Pumps effluent to the Biofilter. The inline filter keeps any solids from clogging the system down the line.

Waterloo Flat Bed Biofilter – located at-grade in your yard. The Flat Beds have a lid made of composite wood and contains pine bark mulch. Below, a permanent ABS shell contains Waterloo treatment media. Pre-treatment tank effluent is dosed to the Flat Beds and treated effluent falls out the bottom of the Flat Beds into the leaching bed below.

Leaching Bed – disperses the treated effluent into the ground.

System Component Functions

System Component	Function	Service Required	Frequency	Responsible
Pre-treatment tank	Primary Wastewater Treatment	Inspection	Annual	Service Provider
		Pump-Out	As Needed	Homeowner*
Waterloo Innertube (AD models only)	Digestion of Solids	Inspection	Annual	Service Provider
		Pump-Out	As Needed	Homeowner*
Effluent Filter (ST models only)	Prevents solids and particulates from leaving the tank	Clean	As-Needed	Service Provider / Homeowner
Control Panel	Controls Pump High-Level Alarm Notification	Inspection	Annual	Service Provider
Floats	Initiates Pump Triggers High-Level Alarm	Inspection	Annual	Service Provider
Effluent Pump	Doses Treatment Unit	Inspection	Annual	Service Provider
Inline Filter	Filters Debris	Emptying	Annual	Service Provider
Electrical Splice Box	Electrical Wiring	Inspection	Annual	Service Provider
Dosing Manifold (spray nozzles)	Distributes pretreated Effluent Over Treatment Media	Clean Nozzles	Annual	Service Provider
Waterloo Flat Beds	Houses Treatment Media	Inspection	Annual	Service Provider
Treatment Media	Treats Wastewater	Inspection	Annual	Service Provider
Pine Bark	Allows Passive Air Flow and Odour Removal	Inspection	Annual	Service Provider
		Replacement	As Needed	Homeowner
Sample Port (where required)	Facilitates Sampling	Sample Acquisition	Per regulations	Service Provider
Leaching Bed	Disperses Treated Effluent Back into the Environment	Inspection	Annual	Service Provider

*Service Provider can make recommendations on pump-out requirements

System Use and Operation

System Start-Up

Once the Waterloo Biofilter is installed it should be commissioned and tested by the installer to verify that it is functioning at that time. The owner is responsible for the products that enter the treatment system. Remember to review the Do's and Do Not's section of this manual. No specific start-up steps are required by the homeowner before beginning to use the system.

Seasonal and Prolonged Periods of Non-Use

The Waterloo Biofilter is a passive wastewater treatment system. If correctly installed, it does not require special procedures for seasonal or prolonged periods of non-use.

Note that if you turn the power off to your seasonal home you should also turn off the water. There is no need to have the pre-treatment tank pumped out at the end of the season. Never add anti-freeze to the system.

Operational Instructions

Using and operating a Waterloo Biofilter system is very simple. Following these Do's and Do Not's are essential for your Waterloo Biofilter to properly treat your household wastewater.

Owner's Responsibilities

The owner is responsible for:

- Using the Waterloo Biofilter according to the instructions in this manual.
- Pumping out the pre-treatment tank when notified by the service provider.
- Providing access to all components of the system for maintenance.
- Having a service contract in place and providing documentation to new owners should the home be sold.
- Respecting all local laws and regulations.

Do's and Do Not's

Washrooms

- **DO** repair any leaking faucets or toilets right away.
- **DO NOT** use excessive disinfectant products including hand sanitizing soaps, bleach, and toilet cleaning pucks.
- **DO NOT** flush any medication down the toilet.
- **DO NOT** flush paper towels, napkins, feminine hygiene products, or condoms.

Kitchen

- **DO** repair any leaking faucets or other fixtures right away.
- **DO** use the appropriate amount of dish soap.
- **DO NOT** use antibacterial soaps.
- **DO NOT** use a food waste disposal unit (trash compactor).
- **DO NOT** dispose of food, coffee grinds, leftover fats, oils, or grease in the sink.

Laundry

- **DO** use laundry detergent in liquid form, biodegradable is ideal.
- **DO** use the appropriate amount of detergent for the load.
- **DO** full loads only.
- **DO** spread your laundry out throughout the week.
- **DO NOT** dump any household chemicals, cleaners.

Outside

- **DO** ensure all gutters and rainwater are diverted away from the Waterloo Biofilter and leaching bed.
- **DO** ask your installer or maintenance provider before grading or landscaping near the system.
- **DO** keep the surface of the leaching bed covered with grass only and cut it regularly.
- **DO** keep the lids accessible always for service and pumping.
- **DO** top-up or replace bark nuggets as they degrade naturally.
- **DO NOT** discharge water softener/water treatment unit backwash into the system.
- **DO NOT** discharge water from pools, spas, sump pumps or RVs into the system.
- **DO NOT** drive anything larger than a riding lawn mower near the system.
- **DO NOT** cover the Flat Beds with anything other than bark nuggets.
- **DO NOT ENTER ANY TANK, FOR ANY REASON!**

Additives

- Only add chemicals or additives that are approved by Waterloo, others may harm or kill the beneficial bacteria in your system.

Please note that medical radiation or irregular immune system responses can affect the health of your system, contact us for further information.

The following items should never enter the wastewater treatment system:

- | | |
|---|--|
| • Water Softener Backwash | Oils |
| • Water Treatment Backwash | • Pesticides, Herbicides |
| • Paint – All Kinds | • Sump Pump Discharge |
| • Solvents – Alcohols, Glycol, Hydrocarbons | • Eaves Trough Runoff |
| • Grease – Commercial and Industrial | • Foundation Drainage |
| • Coffee Grinds | • Cosmetic Products |
| • Bones | • Industrial Cleansers |
| • Cooking Fats and Oils | • Film Developing Chemicals |
| • Cigarette Butts | • Large Volumes of Olive Oil |
| • Diapers | • Excessive Hair Gels and Conditioners |
| • 'Flushable' Wipes | • Anti-Dandruff and Medicated Shampoo |
| • Paper Towels | • Dead Pets |
| • Facial Tissue | • Carpet & Upholstery Cleaners |
| • Sanitary Pads and Tampons | • Expired or Unused Medication |
| • Condoms | • Disinfectants, Germicides |
| • Disposable Gloves | • Bandages, Cotton Swabs and Balls |
| • Toilet Bleach Pucks | • Baby Wipes |
| • Antibacterial Products | • Garbage Disposal Unit Discharge |
| • Antiseptic Products | |
| • Detergent with Bleach | |
| • Peppermint, Palm, and Tea Tree | |

Alarms

Your control panel is equipped with audible and visual alarms. When the alarm goes off you will hear a loud buzzer sound and the light on top of the control panel will turn on. It is unlikely for an alarm to go off when no one is home because the system only operates when water is being used.

Why is the alarm going off?

The alarm indicates that the water level in the pump tank or Biofilter is too high.

What should you do?

You should call your maintenance provider immediately. Limit water use until the problem has been corrected.

How do I silence the alarm?

For Standard Panels - Flip the black switch labelled 'SILENCE/TEST' located on the side of the control panel.

For Smart Panels - Press the 'ESC' key on the panel face to silence to alarm.

Remember that this does NOT mean the problem has been solved, you will still need to contact Waterloo Biofilter or your service provider to rectify the situation.

Indications of a Problem

The key to high treatment levels and problem-free operation is a healthy bacterial population in your pre-treatment tank. The homeowner is responsible for ensuring that no products that are harmful to bacteria enter into the system. Remember that everything you put into the system affects what comes out.

If any of these occur, you should call your maintenance provider immediately:

- Sewage odour around your system (Note: odour coming from the vent pipe on the roof is normal and can down-draft.)
- Standing water around the leaching bed.
- Subsiding or very wet soil around the leaching bed.
- Very slow draining of backstopped toilets or fixtures.

Service and Maintenance Contracts

Follow the laws stipulated by your local jurisdiction as homeowners with advanced wastewater treatment units may be required by law to maintain a current maintenance contract. Failure to maintain a contract will also void your Limited Warranty offered by Waterloo Biofilter.

When contacting your maintenance provider in case of problems or when requesting service, please mention the system specifications that appear on the system label located on the control panel.

Preventative Maintenance Saves Money

Regular maintenance ensures that the system functions properly and remains operational for a long time. Regular maintenance helps to prevent and solve problems before they become large issues that may require costly excavation or replacement.

My Maintenance Provider

Please fill out this section below with the contact details for your maintenance provider. If you do not have a maintenance provider, please contact Waterloo Biofilter Systems at 1-866-366-4329.

Company: _____

Phone: _____

Email: _____

FAQ

What is the protocol for vacations, seasonal homes, or long periods of non-use?

You do not need to do anything to the system when you leave it unattended for a long period of time. The pumps will remain inactive so long as no wastewater is being generated at the site.

What do I do if the power goes out?

The pumps will not function, and the pump tank and pre-treatment tank will start to fill up. Limit water use until the power returns.

Can I bury the lids to my tanks?

All the lids need to be accessible from the surface to facilitate service and pumping. Keep all lids accessible always.

I notice a sewage odour around my wastewater treatment, what causes this?

A sewage odour is not normal. It is an indication of an unhealthy population of bacteria. The do's and do not's section of this manual should be reviewed carefully with the residents. Contact Waterloo Biofilter for further troubleshooting.

Can I plant or landscape around my wastewater treatment unit?

Use care when doing any landscaping near your wastewater treatment unit. There are pipes and electrical buried beneath the ground which could be damaged or cause bodily injury while digging or using machinery. Planting shallow rooted plants around the buried tanks is acceptable, so long as the lids remain accessible for service. Keep vegetation away from vented lids so that oxygen flow into the system is not obstructed. Do not plant in the area where your dispersal bed is located. If you are unsure of the location consult your septic permit, permitting office, designer, Waterloo Biofilter, and/or local utility authority for guidance before you dig.

How often should my system be pumped?

Depending upon usage, the pre-treatment tank should be pumped every 4-8 years, or when the sludge level occupies 1/3 of the tank. Your maintenance provider will indicate if your system requires pumping after each annual service visit.

I'm going to sell my house, what should I do?

Be sure to inform Waterloo Biofilter that you are moving so that we can update our homeowner records. Please inform the new owners that they will need to sign a maintenance contract to receive annual service visits.

Should I be putting any additives in my wastewater treatment system to improve functionality?

There is a wide variety of additives available. Most homeowners will have great treatment without the use of additives. If you think you may require an additive, please contact Waterloo Biofilter first to ensure it is the best option for you.

When does the treatment media need to be replaced?

Waterloo Biofilter treatment media comes with a 20-year warranty (further details in the Limited Warranty section). There is no required replacement after that warranty expires; with proper usage by the residents, media is expected to last much longer.

Limited Warranty

Residential Models up to 10,000 L/day (2,642 gpd)

This limited warranty shall only become effective upon the receipt by Waterloo Biofilter of a signed Maintenance Contract. Failure to sign and send in the Maintenance Contract to Waterloo Biofilter means that Waterloo Biofilter may not be required to fulfill any of the obligations contained in this Limited Warranty. A Maintenance Contract is often required by the local authorities, failure to sign could result in legal consequences.

Limited Warranty Coverage

Components manufactured by Waterloo Biofilter are warranted to be free from defects in materials and workmanship for the Warranty Period described below from the date of product shipment from our dock:

- Waterloo Flat Beds – three (3) year limited warranty

Under this Limited Warranty, Waterloo Biofilter will, at its sole discretion, repair or furnish a replacement for such defective parts at no charge to the owner. Repaired or replacement parts will be warranted for the remaining portion of the original Warranty Period from the date of original product shipment.

Filter Medium

Waterloo Biofilter warrants that the foam filter medium will not biodegrade, under normal and expected operating conditions, to a point where it can no longer absorb wastewater, for a period of twenty (20) years from the date of shipment from our dock.

Under this Limited Warranty, Waterloo Biofilter will replace at no charge to the owner the portion of foam filter medium that is determined by Waterloo Biofilter to be defective. Replacement filter medium will be warranted for the remaining portion of the original Warranty Period from the date of original product shipment.

Other Components

All other components supplied by Waterloo Biofilter carry the original manufacturer's

warranty and are not covered under this Limited Warranty offered by Waterloo Biofilter. The original manufacturer's applicable Warranty Periods are outlined below. Full copies of the original manufacturer's product warranties are available upon request.

Sewage and effluent pumps – three (3) year limited warranty

SJE Control panels – five (5) year limited warranty

Waterloo ALD Control panels – three (3) year limited warranty

Smart panel – two (2) year limited warranty

Float switches – five (5) year limited warranty

Effluent filters – three (3) year limited warranty

Roth Plastic pre-treatment tanks and pump tanks – five (5) year limited warranty

Pump Extended Warranty

If purchased at the time of order, the Extended Warranty increases the duration of the Warranty Period to five (5) years on pumps. All other terms and conditions contained in the Limited Warranty apply.

Shipping and Labour Costs

Under this Limited Warranty, Waterloo Biofilter will not pay labour costs for installation or removal of product for repairs or replacements covered by this Limited Warranty which are performed by a Waterloo Biofilter designated service provider or others during the Warranty Period. This Limited Warranty does not cover any travel time or other labour costs. This Limited Warranty does not cover any shipping costs to or from Waterloo Biofilter's dock, to or from the designated service provider, and to or from the installation site.

Warranty Exclusions

This Limited Warranty does **NOT** apply;

1. if any portion of the product invoice issued by Waterloo Biofilter is

outstanding, even if the product owner has paid in full their purchaser, installer, or agent for said product.

2. to any component not supplied by Waterloo Biofilter including, but not limited to, pre-treatment tank(s), pump tank(s), other concrete tanks(s), electrical wiring, plumbing, drainage or effluent disposal system.
3. to any damage caused by improper transportation, handling, installation or maintenance of the product.
4. to any damage or problem caused by Natural Disaster.
5. to any damage or problem caused by the fault or act of a third party.
6. to any damage or problem arising from any installation, modification, correction or addition carried out, or attempted to be carried out, on the product by a person not authorized by Waterloo Biofilter.
7. to any damage or problem caused by the fault or action of the owner, or the owner's successors, including but not limited to refusing system access for maintenance, tampering with the system, altering control panel settings, or any other attempt to repair, maintain, access or inspect the Waterloo Biofilter system.
8. to any damage or problem if it is demonstrated that the Waterloo Biofilter treatment unit was used outside of its designed use or rated flow capacity, or was not used and maintained in compliance with the terms and conditions outlined in the Owner's Manual.
9. to any damage or problems resulting from heavy machinery or vehicles parked on or driven over the product.
10. to any damage or problem caused by excavation, demolition, landscaping, snow removal, re-grading or construction to the product installation area.
11. to any damage or problem resulting from errors in design specifications provided by the purchaser or its agents.
12. to cosmetic damage such as scratches, scrapes, minor dents, or fading of

stains, sealants or colourings.

Particular Exclusions

Maintenance Requirements

Under the Ontario Building Code owners of advanced wastewater treatment units are required by law to hold a service contract for maintenance and sampling once each year by an authorized maintenance provider. Failure by the system owner to maintain a current maintenance agreement with such a maintenance provider authorized by Waterloo Biofilter will void this Limited Warranty, and Waterloo Biofilter shall be considered completely discharged from all obligations under this Limited Warranty. Annual and complete maintenance records must be presented to the local building authority and Waterloo Biofilter upon request. Failure to present annual maintenance records will void this Limited Warranty.

Failure by the system owner to take preventative and corrective maintenance actions recommended by the maintenance provider in a timely fashion, including but not limited to periodic pumping of the pre-treatment tank, will void this Limited Warranty.

Filter Medium Biodegradation

For the purposes of this Limited Warranty, biodegradation is defined as the decomposition of the filter medium by the action of microorganisms such as bacteria that are naturally present in sewage. Damage to the foam filter media caused by means other than biodegradation as defined above is excluded from this Limited Warranty. Causes of damage excluded under this Limited Warranty include but are not limited to: paints, harsh cleaners or chemicals, water softener backwash, solvents, strong acids, strong bases, insects, animals, excessive flow rates and ultraviolet light.

Transfer of Ownership

If there is a change in ownership of the property where the product is installed, this Limited Warranty may be transferred once under the terms and conditions of this Limited Warranty to the new property owner, provided that:

- Waterloo Biofilter is notified of the transfer of ownership in writing within 90 days

of the closing of the property sale, AND

- the new owner's complete name, mailing address and valid phone number is provided in said notification, AND
- the new owner accepts the terms and conditions set out in this Limited Warranty.

The effective date of warranty coverage will remain the date of shipment of the original purchase by the original property owner or their agent. If the new property owner fails to provide Waterloo Biofilter with a written notification as stated above this Limited Warranty shall be considered null and void. This Limited Warranty cannot be transferred again.

Making a Claim

If the product is suspected to be defective, immediately notify your system maintenance provider to assess the situation and determine next steps.

Limitation of Liability

This Limited Warranty is the only warranty given by Waterloo Biofilter. No one is authorized to make other warranties on Waterloo Biofilter's behalf. IN NO EVENT WILL WATERLOO BIOFILTER, OR ITS DIRECTORS, OFFICERS, OR AGENTS, BE LIABLE TO THE PURCHASER OR ANY THIRD PARTY, WHETHER IN CONTRACT, IN TORT, OR ON ANY OTHER BASIS, FOR ANY INDIRECT, SPECIAL, PUNITIVE, EXEMPLARY, CONSEQUENTIAL, OR INCIDENTAL LOSS, COST, OR DAMAGE ARISING OUT OF OR IN CONNECTION WITH THE SALE, MAINTENANCE, USE, OR INABILITY TO USE THE PRODUCT, EVEN IF WATERLOO BIOFILTER, OR ITS DIRECTORS, OFFICERS, OR AGENTS HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH LOSSES, COSTS OR DAMAGES, OR IF SUCH LOSSES, COSTS, OR DAMAGES ARE FORESEEABLE. IN NO EVENT WILL WATERLOO BIOFILTER, OR ITS OFFICERS, DIRECTORS, OR AGENTS BE LIABLE FOR ANY DIRECT LOSSES, COSTS, OR DAMAGES THAT EXCEED THE PURCHASE PRICE OF THE PRODUCT. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO THE PURCHASER.

Governing Law and Attornment

This Limited Warranty is governed by and will be construed in accordance with the

laws of the Province of Ontario and the laws of Canada applicable therein. Waterloo Biofilter and the owner hereby attorns to the jurisdiction of the courts of Wellington County in the Province of Ontario with respect to any dispute arising under this Limited Warranty.

This Limited Warranty gives you certain specific legal rights, and you may also have other rights which vary from State to State or Province to Province.