



OWNER'S AND OPERATORS MANUAL

OMNI RECIRCULATING SAND FILTER SYSTEM

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QUICK START GUIDE

Please take a moment to read through this manual thoroughly. Familiarity with the information contained herein is essential for proper operation and maintenance of your OMNI Recirculating Sand Filter System (OMNI RSF) and will help to insure proper system operation and compliance with all state and local regulations. This manual is designed as a reference for system owners, operators and maintenance personnel.

Your property is served by an “Innovative/Alternative (I/A)” Wastewater Treatment System and may be much different from the last septic system you owned or used. This manual will help you learn more about your OMNI Recirculating Sand Filter system and keep it operating safely and effectively.

PLEASE BE ADVISED THAT THE SYSTEM OWNER IS RESPONSIBLE FOR COMPLIANCE OF ALL LOCAL AND STATE REGULATIONS. YOUR EDUCATION IS VITAL TO ELIMINATING ANY COSTLY SURPRISES.

TIP: Be sure to review the system Owners and Users Section for more information.

GETTING STARTED

The following information will outline maintenance procedures and special precautions owners should take to maximize the effectiveness and life expectancy of their system. Some of these are legally required and must be followed to insure compliance.

The OMNI RSF is an Innovative/Alternative Wastewater Treatment System used for enhanced wastewater treatment and groundwater protection becoming a common use in many areas where Nitrogen mitigation is needed. By now most everyone is aware of the impact Nitrogen laden wastewater has on coastal embayments. When properly maintaining your OMNI RSF system and adhering to the mandated maintenance and sampling (testing) requirements you are significantly contributing in helping to reduce Nitrogen loading in your coastal waters.

OPERATION AND MAINTENANCE

In the wastewater industry the terms “Operation and Maintenance” or “Maintenance” are often used interchangeably when referring to **service contracts for small scale systems**. The fees for these contracts can be confusing to owners when they are not aware of the requirements for system services.

When signing an “*Operation and Maintenance Contract*” or sometimes called a “*Maintenance Contract*” the system owner is agreeing to have the system routinely inspected and adjusted on a specific schedule and - when necessary - to have the system repaired or maintained to insure proper performance. This requirement is mandatory throughout the life of the system. The contract terms (what is included for a fixed fee and what is not) can vary depending on your local service provider.

The contracts will typically cover the operation and “minor” maintenance activities for a fixed fee with additional services charged as extras. For a more clear understanding of anticipated fees and “cost of ownership” see the next section.

OMNI CONTRACTS

A standard OMNI Operation and Maintenance Contract covers the following:

- **Periodic site visits necessary to inspect the system;**
- **Field tests to evaluate system performance;**
- **Make operational adjustments as necessary;**
- **Check and clean effluent filters;**
- **Preparation of report data and recording of data with authorities** (NOTE: this data is collected and reported digitally and does not always result in a paper report. There may be additional fees to obtain paper copies of these inspections. See your local service provider for details.)

These contracts **do not** cover any repairs, pumping, or extended maintenance procedures such as repair broken pipes, cleaning of clogged lines, flushing of filter beds, cleaning of inorganic debris from tanks, pumps and/or lines, etc.

The table below lists operational (cost of ownership) expenses that can be expected during system ownership.

Action	Frequency of Fee	Approximate Fee
Operation and Maintenance	Yearly	Annual Contract (price is based on system type and required inspections.)
Sampling	Yearly (limited time – typically for first two years only)	Annual Contract (price is based required sampling protocol.)
Periodic Pumping	2-3 years	\$150 - \$200
Pump/Float Replacement	3-5 years	\$200 - \$300
Extended Maintenance	5-10 years	\$300 - \$500
Electricity	Yearly	\$60

These costs are estimates and are subject to change depending on system use and operation. For more information on system requirements you can contact OMNI or your local Board of Health and/or regional permitting authority.

THE BASIC QUESTIONS

Why is this system needed?

The purpose of OMNI RSFs is to treat and dispose of all wastewater being produced by a household or business. Part of the treatment process is the removal of harmful microorganisms and nutrients before they can contaminate ground or surface waters. Many of the microorganisms in sewage are known to cause human diseases and the nutrients can damage entire eco systems.

How is this system different?

This system is designed for enhanced treatment and is much more sophisticated than a traditional on-site septic system wherein it contains pumps, controls and other appurtenances that require upkeep.

Why do we need to have contracts?

The regulatory authorities require system owners to have contracts with licensed operators to help insure the systems are properly operated, and when necessary, maintained and/or repaired to insure consistent performance.

SIMPLE RULES TO FOLLOW

1. BE VERY AWARE OF WHAT CAN NOT GO DOWN THE DRAIN;
 - a. Baby wipes, quick wipes or alike.
 - b. Feminine hygiene products.
 - c. Prescription drugs.
 - d. Chemical cleaners, detergents or similar.
 - e. Fats, Oils or Grease from food or inorganic sources.
2. Educate yourself about your system.
3. Practice water conservation and recycling;
4. Compost food wastes or dispose of in trash;;
5. Maintain your system by having it checked by a professional;
6. Know where all your septic system components are located;
7. **DO NOT DISCHARGE ANY INAPPROPRIATE SUBSTANCES DOWN THE DRAIN;**
8. **DON'T DISPOSE OF ANY INAPPROPRIATE MATERIALS, SUCH AS COOKING GREASE OR OIL WASTES, PAINT PRODUCTS, HAZARDOUS CHEMICALS OR FEMININE PRODUCTS DOWN THE DRAINS/TOILET;**
9. Don't clean paintbrushes into sinks or other drains that lead to the septic tank;
10. Don't drive on or within 10' of the Filter Modules or drainfield (SAS);
11. Don't use septic tank additives.
12. Shut off power to system without notifying operator.

SYSTEM OWNERS AND USERS

Regulations require a valid Operation and Maintenance Agreement be maintained in perpetuity with qualified personnel. Additionally, many local authorities have regulations pertaining to system monitoring (sampling or testing of the system) to insure proper performance.

IT'S NOT JUST THE RIGHT ENVIRONMENTAL CHOICE, IT IS THE LAW!

OWNER RESPONSIBILITIES

Ownership does not need to be confusing with an OMNI RSF. Part of the complete package OMNI delivers includes the technology and the continuing service and support. By following a few simple rules OMNI RSF owners can rely on OMNI's Service programs to take care of the rest.

The System Owner is responsible for the following:
1. Understand their system and requirements.
2. Get system pumped immediately when notified by operator.
3. Employ qualified service providers to operation and maintain your system.
4. Operate and maintain the system in accordance with state and local regulations.
5. Operate and maintain the system in accordance with Owners and Operators Manual.

There are options available for extended warranty and comprehensive service packages covering all ownership costs for a fixed monthly fee called the OMNI Essentials™ service program. Contact your OMNI representative for further details.

SEPTIC SYSTEM ADDITIVES

The use of Septic additives of any type is prohibited! Septic system additives should only be used under close supervision of a qualified system operator. Some additives may actually cause system failures.

TIP: taking care of what goes down the drain is the best thing you can do to protect your system.
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WHAT CANNOT GO DOWN THE DRAIN

Your RSF is for treatment of typical kitchen, bathroom and laundry wastewater and should not be used as a disposal site for other types of waste. Any materials that do not readily biodegrade within the Septic Tank should not be flushed down a toilet or poured down a drain. This would include the following: **sanitary napkins, flushable baby materials and/or wipes, tampons, coffee grounds, grease or oils of any kind, hair, "disposable" diapers, cigarette butts, dental floss, any paints (latex paint is very bad for filter baffles and the sand filter), solvents, degreasers, pesticides, prescription drugs such as antibiotics or any toxins. Large quantities of disinfectants (e.g., bleach) should also be kept out of your Septic Tank.** Normal clothes washing or household cleaning chores should not pose a threat to your system.

TIP: Do not use caustic oven or drain cleaners. Drains can often be cleaned using a mix of baking soda and vinegar followed by boiling water.
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GARBAGE DISPOSALS

The use of garbage disposals is not recommended. If you must use it, do so very sparingly and be sure to remove all fats, oils and grease (FOG) first. Garbage disposals use large volumes of water and pass massive quantities of nutrients and solids into the Septic Tank. The use of garbage disposals can overload your septic system causing it to fail and requires more frequent septic system pumping.

ACTIVITIES NEAR THE SYSTEM

You should not build on, excavate, pave, drive over, or allow water to collect around any parts of the system. Wet spots on or near the Filter Modules or drainfield are potential indicators of problems.

The entire system can be walked on and landscaped over safely. Landscaping over the system can be performed and maintained regularly provided all activity is in accordance with this manual.

LANDSCAPING AND SOIL PROTECTION

The system owner is responsible for maintaining any landscaping features, including any mulch located over the OMNI Filter Modules and keeping required covers accessible and/or to grade.

- Sprinkler systems should not be installed in or within 10 feet from the system.
- Do not plant trees or shrubs on top of filter module area to prevent root intrusion.
- Do not travel over covers with lawn care equipment such as riding lawn mowers or tractors.
- Do not locate any type of garden over the filter module or drainfield areas.
- Do not allow surface runoff (rain water) to be directed over the filter module or drainfield areas
- Do not allow the broadcast of fertilizers over filter modules.

OMNI is not responsible for the removal or disposal of any inappropriate materials located over the Filter Modules or system covers. All costs associated with the removal and disposal of such material is the sole responsibility of the system owner or other responsible party.

HOW MUCH USE CAN THE SYSTEM HANDLE

Each OMNI RSF is designed to handle a specific volume of wastewater per day and will not operate properly at a flow rate higher than that for which it is designed. When the system receives more water than it was designed to handle the biological environments can fall out of balance drastically affecting performance. Single short term occurrences most often will not have a significant impact and will often be automatically be logged and corrected by the system controls.

The normal average monthly water use, as indicated by water bills or use records, should be no more than what the system was designed for. If the water bill or use records indicate excessive water usage, check to make sure the source of the excess water is not a leaking plumbing fixture (toilet or faucet). In the case of excessive water use the source must be identified and corrective actions taken. Failure to do so will result in poor system performance.

TIP: intrusion of surface or ground water can overload the system. Surface runoff should always be diverted away from the system components.

WATER CONSERVATION

It is important that you practice good water use habits to get the maximum life span from your OMNI RSF and to protect our most precious resource. Here are some tips to follow:

- Laundry washing should be spaced throughout the week and not all done in a single day. Wash only full loads of laundry or dishes.
- Low flow plumbing fixtures (toilets, faucet aerators, and showerheads) should be installed if not already present in the house. (Low flow fixtures will be present in homes built since 1993.)
- Water-conserving appliances, such as front-loading clothes washers or the new spray-rinse washers should be chosen when replacing your appliances.
- Practice water reuse applications such as drip irrigation.

POWER FAILURES

As with most systems relying on electrical power, there is a potential for disruption of operation during a power failure. The OMNI fail-safe design automatically defaults to standard mode in the event of a power failure without interruption. However, in the event that a power failure does occur, the performance features making the system unique will not function properly resulting in wastewater entering the system to be discharged untreated, thereby, defeating the very purpose of the enhanced treatment.

During a power failure, the wastewater cannot be pumped to the filter modules and therefore, will accumulate in the recirculation tank. You should begin water conservation measures as soon as the power goes out.

An OMNI RSF system will take care of itself over time once the power comes back on. In order to let your system “catch up”, continue to conserve water for an additional 12 hours once power is restored. If the high water alarm sounds (solid red light with buzzer) when the power comes back on will indicate the effluent has backed up into the emergency storage area of the recirculation tank. The alarm can be silenced manually and will shut itself off once the pump system has pumped the excess wastewater from the tank.

WARRANTY

The OMNI RSF comes with a two (2) year manufacturer’s warranty. OMNI warrants its products to be free from defects in material or workmanship under normal and proper use in accordance with instructions outlined within this manual. Any defective part shall be repaired or replaced as elected by OMNI. The foregoing warranties are valid for a period of two (2) years from the date of invoice. Seller makes no warranty of fitness for any particular purpose nor does it make any warranty express or implied, of any nature whatsoever with respect to its products or services or the use thereof. The warranties shall not apply to any products which have been repaired or altered by non OMNI personnel in any respect which, in the judgment of OMNI, affects their condition or operation.

This warranty is invalid if the Buyer fails to meet its obligations under the terms of this Agreement.

SPECIFICATIONS AND TROUBLESHOOTING

A complete OMNI RSF operation and performance evaluation is to be conducted during each required site visit. A system monitoring report is required to be submitted by the operator to the DEP and local authorities.

Operation and Maintenance Frequency Specifications			
Inspections: (year round use)	2 x year	Flushing Laterals	1 x year
Inspections: (seasonal use)	2 x year	Brushing Laterals	As needed
Pumping Septic Tank	1-3 years	Sludge Depth Reading	Every visit
Pumping Recirculation Tank	As needed	Cleaning Effluent Filter(s)	Every visit

NOTE: These are the manufacturer's minimum Operation and Maintenance requirements as recommended by OMNI. Failure to follow these minimum requirements will void all warranties.

TECHNOLOGY AND SERVICE PROVIDER INFORMATION

Company: OMNI ENVIRONMENTAL SYSTEMS, INC
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The System Operator is a person certified to perform the required periodic Operation and Maintenance (O&M) of this OMNI RSF, as well as problem diagnosis, repair and sampling (testing). For OMNI RSF systems located within the Commonwealth of Massachusetts, state and local regulations require that periodic operation and maintenance are performed by a Department of Environmental Protection (DEP) Certified Wastewater Plant Operator (of at least a Grade 2-M).

The System Operator is required to complete a Site Visit Inspection Form and report the results to both the Department of Environmental Protection and local Board of Health.

FAIL-SAFE SYSTEM DESIGN

As with most systems relying on electrical power, there is a potential for disruption during operation. The OMNI fail-safe design automatically defaults to standard mode in the event of power failure with no interruption to the use of the system. However, in the event that a power failure does occur, the performance features that make the system unique will not function properly, allowing wastewater entering the system to be discharged untreated, subsequently defeating the very purpose of the enhanced treatment.

ALARM CONDITIONS

The alarm warning light will and audible alarm will sound if the liquid level within the Recirculation Tank rises beyond the normal operating level. This alarm can indicate one of the following conditions:

1. The pump is not working;
2. A float is malfunctioning;
3. An large influx of water has entered the system from the house;
4. Surface water or ground water is leaking into the tank;
5. A clog in the line is preventing proper discharge.

TIP: To silence the alarm, push the reset button on the alarm box.

There is a minimum of 24 hour emergency wastewater storage capacity built into the every system. This should allow you enough time to get the problem corrected..

Follow these steps during alarm conditions:

1. Silence Alarm;
2. Check for a tripped circuit breaker in control panel.
3. Review most recent water usage activities (for example: several loads of laundry, multiple showers, extensive bathroom usage during social gatherings).
4. Exercise water conservation.
5. If alarm sounds a second time contact operator and notify of alarm.

Be aware that OMNI RSF's are sophisticated on-site systems and not every septic installer, maintainer or designer will be well versed or qualified to troubleshoot or repair them. Consult the Health Department for more information.

IMPORTANT: Only a qualified system operator should ever make system adjustments.

PERFORMANCE MODIFICATIONS

As with most biological systems a very delicate balance is needed to insure a steady environment suitable for effective growth of bacteria. The OMNI RSF has various features designed for operators to make finite adjustments. The table below lists the types of adjustments available. For more information or performance assistance contact an OMNI representative.

Name	Description
Septic Feed Valve	Controls the amount of effluent returned into the septic tank for denitrification purposes.
Sand Filter Feed Valve	Controls the amount of sent to the filter modules for BOD, TSS and Nitrification treatment.
Float Valve	Controls the level in the recirculation tank and determines discharge point in treatment process
Manifold Caps	Are used to balance the manifold by turning or change recirculation ratios by changing cap types.
Timer Controls	Controls the amount of time and periods the pump runs for. This is a critical control feature that can drastically alter the performance of the system.

OPERATION AND MAINTENANCE PROVIDERS

It is essential the system be inspected and operated by a qualified individual and maintained on a regular basis. OMNI RSF systems are relatively complex, susceptible to abuse and can be costly to repair if not properly operated and maintained.

SEPTIC SYSTEM PUMPING

Heavy solids settle to the bottom where bacterial action produces digested sludge and gases. Lighter solids that float, such as grease, fats and oils, rise to the top and form a scum layer. Sludge and solids that are not decomposed remain in the septic tank. Pumping is a very important aspect of proper care and should not be neglected.

The average pumping service interval is 1-3 years. However, this interval depends on use. A more frequent pumping schedule may be necessary depending on what goes down the drain. Inspecting the sludge and scum accumulation is the only sure way to determine whether a tank needs to be pumped. As sludge and scum gradually accumulate it will need to be removed. **The tank should be pumped before either the scum mat or sludge layer is twelve (12) inches thick.** The system operator will recommend any necessary pumping according to the schedule below.

Item	Frequency
Septic Tank	When scum or sludge layer is greater than 12"
Recirculation Tank	When sludge is detected.
Pump Chamber (or other)	When sludge is detected.

Over time sludge will eventually build up in the recirculation tank and required to be removed. If this is not done in a timely fashion the sludge can clog the filter modules and require extensive cleaning. The recirculation tank should be pumped when the sludge layer exceeds two (2) inches thick.

If the recirculation tank requires pumping more than once in a three year period the operator should evaluate the effectiveness of the Septic Tank Effluent Filter and Tee's and determine if replacements are needed. In no case should the recirculation tank require pumping more than once ever three years.

The system operator determines the need for pumping and may recommend additional pumping if tanks contain suspected performance inhibiting contaminants. Required pumping frequency can change with system use conditions (such as the number of residents).

Upon completion of pumping, the Pumper is to provide you with a report detailing the service. At a minimum this report is to include the following:

1. Name, address and phone number of the pumping firm;
2. Name, address and phone number of the owner/occupant of property serviced;
3. Date service performed;
4. Type of tanks and number of compartments pumped;
5. Number of gallons pumped;
6. General tank condition observed;
7. Description of any other service performed; and
8. Signature and certificate of competency number of person performing the work.

TANK TEE'S & EFFLUENT FILTERS

Septic Tank Tee's are devices within the Septic Tank that are essential to containing the solids where they belong and separate the floating scum layer from the liquid layer. This promotes settling of solids and allows clarified liquid to enter the recirculation tank.

All tank baffles (Tee's) should be inspected whenever the sludge and scum levels are measured. A broken outlet baffle or dislodged effluent filter can allow floating scum to leave the tank through its outlet. This can make it appear the tank does not require pumping.

Sewage scum entering the Recirculation Tank and will cause the filters modules to clog and require extensive maintenance. Effluent filters must be replaced if they are in poor condition. **The outlet baffle (Tee's) of the Septic Tank must contain an effluent filter to keep any solids from passing into the Recirculation Tank.** The effluent filter will need periodic checking and cleaning. If the filter clogs, plumbing drains may drain slowly or sewage may backup in the house. The filter baffle (Tee) should be checked and cleaned as part of the OMNI RSF system operation service performed by the service provider. Cleaning the filter generally involves simply removing it and hosing it off into the access for the inlet compartment of the tank.

NOTE: When removing the effluent filter for cleaning, solids can pass into the Recirculation Tank. Have a backup filter ready for immediate replacement to prevent solids carryover.

OPERATION AND MAINTENANCE

Requirements vary on the frequency of which maintenance inspections are to be performed. Contact your local Health Department if you are unsure of your maintenance requirements. This maintenance is required by both State and Local health regulations and is intended to save you money in the long run while protecting public health. More frequent inspections are sometimes needed if there is reason to expect the system is not operating correctly.

Operators should carefully execute the following procedures for every site visit conducted and/or note reasons for not executing any particular procedure.

1. Inspect area around system for the following:
 - a. Indications of excessive moisture and/or signs of puddling;
 - b. Appropriateness of vegetation, landscaping impacts, etc.;
 - c. Damage to system covers or vents.
2. Open covers for system components and complete the site visit form by inspecting the following:
 - a. Liquid Level in tanks.
 - b. Characteristics of wastewater in each environment;
 - c. Condition of equipment and components;
 - d. Sludge Levels of ALL tanks.
 - e. Inspect carbon media and replenish when needed with OMNI certified media ONLY.
3. Wait for system timer (turn system on manually only if necessary) to observe the following:
 - a. Draw down levels of tanks;
 - b. Pump operation;
 - c. Functionality of Filter Laterals (IMPORTANT);
 - d. Flow rates between components (observe full cycle);
 - e. Condition of filter media.
4. Access sand filter units (MINIMUM OF ONCE A YEAR) and inspect the following:

- a. Need for cleaning (Brush and Flush as needed).
 - b. Residual pressure at the lateral ends;
 - c. Condition of OMNI RSF filter media
5. Inspect the Control Panel and complete the site visit form by inspecting the following
- a. Conditions of lights, circuit breakers and components;
 - b. Log statistics form logic unit.

If these procedures detect potential problems, additional tests might be needed. These tests sometimes include sampling and laboratory testing of effluent.

OPERATOR NOTES

In order for the system to function properly the media in the filter units must be maintained in good condition and should be checked every visit.

Partial plugging of the sand filter's distribution piping may occur over time resulting in uneven distribution of effluent within the sand filter. A situation like this can drastically affect the systems performance. Operators should check for increased residual pressure at the ends of the distribution pipes in the sand filter at least once a year.

It is very important to keep solids out of the Recirculation Tank. If sludge is frequently occurring, evaluate the effectiveness of the effluent filter as the actual flows may exceed its effective operating capacity.

THE OMNI RECIRCULATING SAND FILTER SYSTEM

The OMNI RSF is a variable multi-pass Recirculating Sand Filter. OMNI RSFs employ innovative designs for wastewater treatment resulting in enhanced Nitrogen removal, producing a high quality effluent suitable for discharge to a standard soil absorption system (SAS) or for water reuse applications.

A typical OMNI RSF system the following components:

- The **Septic Tank** with its outlet baffle filter.
- The **Recirculation Tank** with its pump, controls and alarm system.
- The **Filter Modules** (the sand filters).
- The **Soil Absorption System (SAS)** or “Final Discharge” where effluent from the sand filter receives final treatment and is recharged into the aquifer.
- The **Control Panel** that operates pumps, counters, alarms, etc. typically located on the outside of the building.

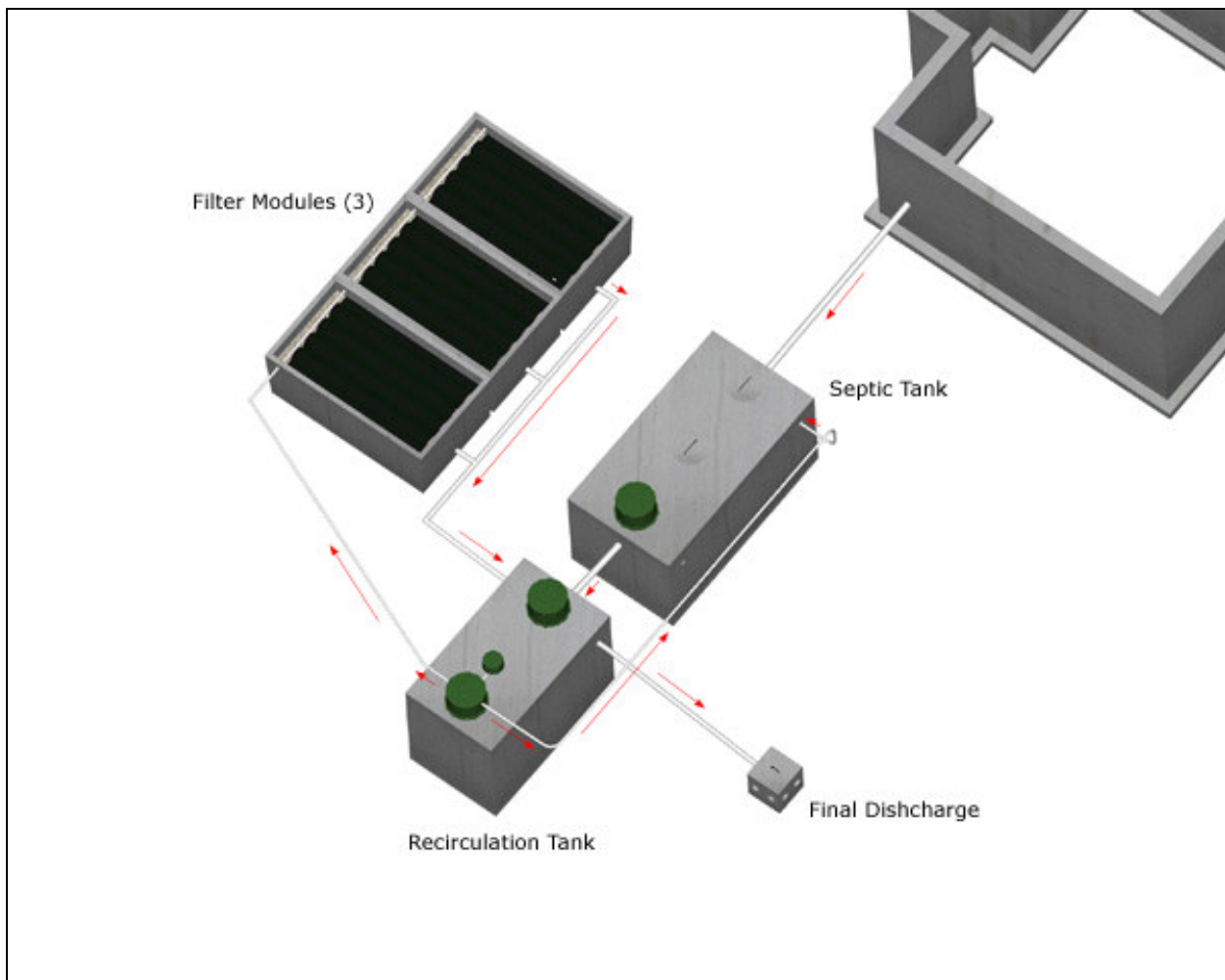


Figure 1 – OMNI RSF Layout

SEPTIC TANK

Wastewater leaving the structure or dwelling is a liquid called “influent”. The first step in the treatment process is to allow the influent to adequate time within the septic tank to allow the solids to settle and the development of the anaerobic bacterial colony necessary in the treatment process.

The septic tank contains a pressure distribution system and effluent filter. Sludge is allowed to accumulate below the distribution system where it is periodically pumped out. Pretreated wastewater is pumped back from the recirculation tank and into the septic tank through the pressure distribution system.

The pressure distribution lines should be check for obstructions at least once a year.

RECIRCULATION TANK

Wastewater leaving the Septic Tank is a liquid called “effluent”. While it has received some treatment in the Septic Tank, it is still unpleasant smelling and contains disease organisms, organic wastes and other pollutants. This effluent requires proper treatment and disposal; otherwise there can be significant environmental and public health problems.

The Recirculation Tank containing a sewage effluent pump, control floats and flow splitting device is connected to the Septic Tank and the Filter Module. A pump is used to carry the effluent to the sand filter and septic tank where it then flows by gravity back into the recirculation tank. A flow splitting device discharges a portion of the treated wastewater for final discharge after treatment.

The control floats and valves are set so that a specific volume of effluent remains in the tank and allows for equalization during peak flows. The controls are programmed to determine the amount of each dose, the time between doses and the frequency of discharge.

Sludge accumulation should be carefully monitored and maintained.

FILTER MODULE

This modular component is housed in container fitted with a valve and piping system and specially prepared media.

The Filter Modules can be easily hidden beneath the ground and blended into simple landscape schemes. This area on the top of the module is covered with filter cloth and soil, which must be kept free from roots. If the residual pressure in the distribution lines are too high, this may indicate some orifices within the Filter Module pressure lines are plugged.

A flushing of the pressurized lines should be performed at least once a year.

SOIL ABSORPTION SYSTEM (SAS)

The Soil Absorption System (SAS) also referred to as “drainfield” or “leach field” is used for final treatment and disposal. There are two typical SAS designs used for most applications, “pressure distribution” or “gravity fed.”

A **pressure distribution drainfield** is constructed using gravel-filled trenches (or a system of plastic chambers) supporting a network of small-diameter pipes. RSF effluent is pumped through the pipes in controlled doses to insure uniform distribution through the trenches. The effluent squirts from the pipes under moderate-low pressure through small diameter holes and trickles down into the native soils.

A **gravity fed drainfield** is the simplest, traditional type of drainfield. It is constructed using gravel-filled trenches (or a system of concrete and/or plastic chambers) supporting a network of pipes. It may appear as a slight rise or bump in the yard in high groundwater areas. When a gravity drainfield is used with a RSF, a Pump Chamber is not required. Instead, effluent flows by gravity into the drainfield.

CONTROL PANEL

The Control Panel is typically located on the side of the building or inside the basement. These controls are responsible for maintaining a steady environment in the system, controlling fluctuations in flows, and notification of system not performing properly.

The timer controls the maximum number of pump cycles per day and ensures the doses are spread out to allow adequate resting periods between doses. Each pump cycle is designed to deliver a calculated amount or dose of effluent to the filter module. The size and frequency of the doses are based on site specific conditions.

These controls should never be altered by anyone other than the system operator. Altering the controls can have a dramatic effect on system performance.

OMNI RSF INSPECTION FORM

The following Site Visit Inspection Form should be completed by a qualified service provider each time a visit is conducted.



Office Use Only	
Scanned	
Recorded in Database	
Report to Agency	

OMNI RSF MAINTENANCE CHECKLIST

SITE VISIT INFORMATION

Project Name:		Date:	
Actual Flow:		Operator:	
Alarm Condition:	Yes <input type="checkbox"/> No <input type="checkbox"/>	System Condition:	
Operating Correctly:	Yes <input type="checkbox"/> No <input type="checkbox"/>	Results Pending:	Yes <input type="checkbox"/> No <input type="checkbox"/>
		Seasonal Residence:	Yes <input type="checkbox"/> No <input type="checkbox"/>

SEPTIC TANK / ANOXIC TANK

Septic Tank Inspected:	Yes <input type="checkbox"/> No <input type="checkbox"/>	Effluent Filters Present:	Yes <input type="checkbox"/> No <input type="checkbox"/>
Scum Depth (Inches):		Effluent Filters Cleaned:	Yes <input type="checkbox"/> No <input type="checkbox"/>
Sludge Depth (Inches):		Pumping Required:	Yes <input type="checkbox"/> No <input type="checkbox"/>

RECIRCULATION TANK AND EQUALIZATION TANK

Recirculation Tank Inspected:	Yes <input type="checkbox"/> No <input type="checkbox"/>	Effluent Filters Present:	Yes <input type="checkbox"/> No <input type="checkbox"/>
Unusual Odor or Condition:		Effluent Filters Cleaned:	Yes <input type="checkbox"/> No <input type="checkbox"/>
Float Switches Inspected:	Yes <input type="checkbox"/> No <input type="checkbox"/>	Alarm Tested: (Audible/Visual)	Yes <input type="checkbox"/> No <input type="checkbox"/>
Sludge Depth (Inches):		Pumping Required:	Yes <input type="checkbox"/> No <input type="checkbox"/>

FILTER MODULES / BED

Filter Modules Inspected:	Yes <input type="checkbox"/> No <input type="checkbox"/>	Distribution System Brushed:	Yes <input type="checkbox"/> No <input type="checkbox"/>
Distribution Pipes Inspected:	Yes <input type="checkbox"/> No <input type="checkbox"/>	Distribution System Flushed:	Yes <input type="checkbox"/> No <input type="checkbox"/>
Bed Maintenance Required:	Yes <input type="checkbox"/> No <input type="checkbox"/>	Action Taken:	
Head Loss Measurement:			

PUMP CHAMBER / FINAL DOSING TANK

Pump Tank Inspected	Yes <input type="checkbox"/> No <input type="checkbox"/>	Sludge Present:	Yes <input type="checkbox"/> No <input type="checkbox"/>
		Pumping Required:	Yes <input type="checkbox"/> No <input type="checkbox"/>

CONTROLS INFORMATION

Access To Controls:		Yes <input type="checkbox"/> No <input type="checkbox"/>	Controls Inspected:		Yes <input type="checkbox"/> No <input type="checkbox"/>				
ON (min)	OFF (min)	OVRON (min)	OVROFF (min)	P#1 Count	P#1 ETM	P#2 Count	P#2 ETM	OVR 1 Count	OVR 2 Count

High Level Count	Low Level Count	Power Faults	Operating Hours	Timer Flt Count

SAMPLING DATA

DO ST	DO RT	ORP RT	Ammonia	Nitrate	Ph	Alkalinity	Temp	Back Flow Rate	Forward Flow Rate

GENERAL INFORMATION

Additional Follow-up Needed:	Yes <input type="checkbox"/> No <input type="checkbox"/>
Inspection Notes:	

APPENDIX – A “HOW OMNI RSFs WORK”

The OMNI RSF treatment process is simple in nature and is based on traditional principles for wastewater treatment. The influent enters the Septic Tank where it is pretreated and the solids are allowed to settle. It is in the Septic Tank where treatment begins.

BIOLOGICAL TREATMENT

OMNI RSFs are home to a variety of organisms, many of which contribute to the treatment process by consuming organic matter in the wastewater. Bacteria are the most abundant organisms in the filters and in turn do most of the work.

There are also other beneficial life forms found in the Filter Modules, such as protozoa and worms, which contribute to the treatment process. After the Filter Modules have had a chance to mature - usually after a period of approximately one month - a miniature ecological system develops as the organisms multiply and rely on each other to survive.

Another significant part of the OMNI RSF is the ecosystem that is formed inside the Filter Modules, consisting of a biological layer that forms on the surface of the filter media. This layer contains bacteria that feed on the organic particles in the wastewater where, in turn, the wastewater is treated. To insure proper performance these Filter Modules are periodically checked.

TREATMENT PROCESS OVERVIEW

In typical designs, partially treated wastewater is applied to the Filter Module surface in intermittent doses and receives treatment as it slowly trickles through the filter media. The wastewater then collects in an under drain and flows to further treatment and/or disposal. The Recirculating Sand Filter concept allows only a small portion of the wastewater to be released as the remaining effluent re-enters the system for further treatment.

It is this balance between various life forms and the physical and biological processes that take place within the OMNI RSF ecosystem, which result in extremely efficient wastewater treatment requiring minimal effort in operation and maintenance expenses.