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## **A guide on how to properly operate your Aeration system to maintain bacteria levels.**

It is important that you understand how and aeration system works in order for you to get proper, long term performance from your system.

An aerated system, regardless of brand, uses a combination of stirring and air to introduce dissolved oxygen into the sewage tank. This is what distinguishes it from a conventional septic tank. The reason is to promote the growth of bacteria. The bacteria then breaks down the solid waste, and makes it possible to dispose of the remaining liquid to a surface discharge without having raw sewage laying on top of the ground. This process is similar to the process that takes place by aerating a fish tank. You are adding dissolved oxygen to the water to keep the fish alive, otherwise they would suffocate after a time because the water had no oxygen. Adding oxygen provides a healthy environment for the bacteria to thrive, and reproduce, therefore accomplishing the breakdown of waste.

As it is important for fish in a tank to be fed, so it is for the bacteria in your tank. The bacteria receives its food from the natural waste stream that comes down the drains from your house. The human feces along with the food scrapings and other food items that run down your drains are what sustain these microorganisms. It is CRUCIAL that these bacteria thrive. If they do not, the system will not perform properly, resulting in odor, and poor quality water discharge.

Aside from the introduction of air into the system, the process is ENTIRELY BIOLOGICAL and strictly speaking, if the aerator is properly introducing air into the system it is the job of a live cell mass of bacteria to control odors and sludge build up.

### **EXTREMELY IMPORTANT**

Aeration systems are designed for "NORMAL AND EXPECTED HOUSEHOLD WASTE" and will not accept large quantities of chemicals such as bleach, household cleaning disinfectants, etc. No one expects you not to clean your home, however moderation in the use of these products is both expected, and necessary for an aerated system to work properly. Listed below are some essential do's and don'ts when you use an aerobic system.

1. Chlorine bleach is the "Kiss of Death" to anything it comes in contact with. It will kill any bacteria that it comes into contact with. It will kill the family dog, the house cat, or You, if you ingest it into your body. Avoid the use of Chlorine all together. This means in the laundry, as well as in your day to day cleaning chores. The toilet bowl disks are straight chlorine, and cannot be used

without devastating the bacterial levels in your system. So... **DO NOT USE CHLORINE BLEACHES, CLEANING PRODUCTS, OR DISINFECTANTS EXCEPT IN EXTREME MODERATION.**

2. **THE SOLUTION:** Use bleach substitutes, Oxy clean, and natural cleaning products. Vinegar will clean the toilet just as well as bleach does. There are products on the market that you can use that do not contain harsh chemicals such as chlorine and ammonia.
3. **DO NOT USE YOUR TOILET AS A TRASH CAN.** No paper products other than toilet paper should ever be flushed down your system. Antibacterial wipes, feminine personal products, condoms, cigarette butts, meat fat that will not biodegrade, excess medications, mop water, coffee grounds, grease, oil, automotive fluids, or excess pet products should NEVER be placed into any septic system.

IT IS IMPOSSIBLE FOR US TO NAME EVERY POTENTIAL CHEMICAL, MUCH LESS EVERY NAME BRAND PRODUCT THAT WILL HARM YOUR BACTERIA LEVELS. I WILL NOT GET INTO THE BUSINESS OF NAMING WHICH BRAND OF CLEANER, SOAP, DISENFECTANT, OR DETERGENT IS OKAY FOR YOUR SYSTEM. YOU AS THE HOMEOWNER NEED TO RESEARCH THIS AND TAKE THIS RESPONSIBILITY UPON YOUR SELVES. IF YOU USE COMMON SENSE AS TO THE PRODUCTS AND THE AMOUNTS USED THEREOF YOUR SYSTEM WILL FUNCTION PROPERLY AND GIVE YOU GOOD LONG TERM SERVICE.

4. **DO NOT USE YOUR RESIDENTIAL SEPTIC SYSTEM AS A BEAUTY SALON.** Public health will not approve of the use of aerobic systems on homes where hair is being done in the home. The reason, the system will not accept all of the chemicals associated with perm solutions, hair dyes, etc. Acrylics used at nail salons are also an issue. Special accommodation should be taken at homes where this is happening. NO aerobic system currently made will accommodate this. Beauty salon waste is considered High Strength Waste and your Public Health Department should be consulted as to how to design a system that will accommodate your needs.
5. Discharge from water softeners and air conditioner condensate drain lines should never be connected to any septic system.
6. **DO NOT OPERATE A PET GROOMING BUSINESS OUT OF YOUR RESIDENCE.** Harsh chemicals from flea and tick soaps, as well as external flea and tick treatments contain harsh insecticides. When you bathe pets in a tub or shower, and allow it to go into the septic system, you are washing insecticide into the system. Even the smallest amounts of these products are too much. **DO NOT DO THIS!!!!**
7. Are there any prescription or non prescription drugs entering into the system? Many drugs contain chemicals designed to kill bacteria in the human body. The result is a waste stream entering the system through the toilet that is toxic. Take this in consideration if you are encountering a problem.

REMEMBER, IF IT WILL KILL THE FAMILY DOG IT WILL ALSO KILL THE BACTERIA IN THE AEROBIC SYSTEM.

**THE SUCCESS YOU WILL ENJOY WITH YOUR NEW SYSTEM, OR THE FAILURE YOU MAY ENCOUNTER RESTS ON TWO THINGS.**

1. Correct mechanical function. The homeowner should read his or her owners manual and ask enough questions to understand how the system should be performing. I strongly recommend extended service agreements that extend past the two years we will be servicing your unit. If the correct mechanical functions are not happening, the system WILL NOT work. It doesn't matter what you do. Repairs should be made IMMEDIATELY and not delayed. Delay in repairs could cause more damage to components, and cause the system to need pumping prematurely.
2. As discussed above in some detail, bacteria levels must be adequate. If they are not adequate, 200 service calls by 50 different technicians, plumbers, state health inspectors, plumbing inspectors, neighbors, handy men, neighbors, drinking buddies, or pastors will not solve your odor and discharge quality concerns. It is something that must be fixed by the usage in the home, by the people living in the residence. No living human being will be able to correct this problem, except for YOU.

## SPECIAL ATTENTION !!!

Hydraulic overloading of a system is a problem. Water usage should be spread out to avoid this problem. Showers or baths one right after the other, especially if they are for prolonged periods should be avoided. This is especially true of the large jet tubs that many of the newer homes have that hold large quantities of water. Do NOT do all of your laundry at one time. Spread laundry out over several days. Hydraulic overloading can push solid waste out the discharge of your system, and can push your aerobic bacteria out the discharge, keeping your system in a dead condition, with sludge build up in the clarifier section of the tank, causing poor discharge and an alarm condition. The waste in the tank cannot receive proper treatment if this occurs. Proper retention of the waste in the aeration zone is REQUIRED. Basement drains, foundation drains, patio or garage floor drains, sump pumps and gutter drains must NEVER enter into the household plumbing system and will cause major issues with your treatment plant. Sewage ejector pumps must be sealed to prevent ground water infiltration.

The above is an overview of how aerobic systems function, and are not specific to AQUAKLEAR, or any other brand of system.

**AEROBIC SYSTEMS WORK, OVERALL, VERY WELL AND IF MAINTAINED PROPERLY WILL PERFORM WELL FOR YOUR LONG TERM WASTEWATER TREATMENT NEEDS.**

### QUESTIONS I HAVE BEEN ASKED REPEATEDLY

1. WILL I HAVE ANY SMELL FROM THIS SYSTEM?

No, as long as all of your mechanicals are working properly, and your bacteria levels are not down, unless...

- a. Water is allowed to pond at the point of discharge and becomes stagnant.
  - b. The home venting system is inadequate. Improper venting may cause a disproportionate amount of sewer gas to fall to the ground, especially when the air is heavy at certain times of the day. This is a fairly common problem on some manufactured housing, due to the fact that they are not required to meet some of the same stringent plumbing codes that licensed plumbers. However, we have seen this problem, although rarely, on stick built homes in situations where a non-licensed plumber or a do it yourselfer installed the plumbing. ALWAYS USE A LICENSED PLUMBER.
  - c. ODOR INSIDE THE HOUSE is never a septic system problem. Odor inside the home is the result of improper venting or a dry plumbing trap. Check to see if all the traps are full of water, and the vents are not plugged up. If odor persists, contact your plumber. A smell outside may be the result of a condition with the septic system, and we should be contacted. An inside smell is a plumbing issue.
2. IS THE TANK FULL? The answer to this question is always yes. Sometimes it is full of sludge, and ready to be pumped, and sometimes it is not. This determination is best made by a professional.
3. HOW MUCH WATER IS GOING TO COME OUT OF THE DISCHARGE LINE ON MY SYSTEM? Unless you install lateral lines, or some other flow reduction system behind your aerobic system to absorb water you must understand that every single gallon of water that is used in the house will eventually wind up laying on the ground at the end of the discharge. The result is a spot that is extremely wet and sometimes can be difficult to mow. More and more homeowners are investing

in effluent reduction, or lateral behind their systems to lessen the amount of water they have laying in their yard or ditch.

4. WILL I EVER HAVE TO HAVE MY SYSTEM PUMPED OUT? Yes is always the answer. Even though there are some people out there marketing systems that will tell you otherwise, this is the TRUTH. How long depends on a lot of factors, including how much the system is used and what type of use it gets.
5. HOW LONG WILL MY SYSTEM LAST? The downside to an aerobic system is that there are mechanical parts that will eventually wear out and have to be replaced. If that failure happens after the warranty period expires, the homeowner will be left with the expense of repairing the unit. However, it is important to remember that all systems require maintenance. There is no such thing as a maintenance free septic system. This goes for lagoons, which have to be mowed and the brush kept out, as well as having their tanks pumped. This goes for buried sand filters as well as lateral fields.

## What about service????

ALL aerobic distributors are REQUIRED by State Law to service your systems mechanical components for two years from the date of installation. They are required to provide this service FREE OF CHARGE. Our company will service your mechanical components and monitor the performance of the system for the two first years. After the two years are expired, we offer two different service plans for you to choose from. the **GOLD PLAN** covers mechanical parts as well as labor to continue the twice yearly service. The **SILVER PLAN** covers labor only plus a parts discount. Pumping of the tanks is not included in the initial two year free service, or the **GOLD PLAN** or the **SILVER PLAN**. All local jurisdictions as this company and the manufacturer recommend an extended service plan of some type. Some local jurisdictions REQUIRE it.

It is important to remember that all septic systems require maintenance. We recently replaced a buried sand filter that was 11 years old because the tank had not been pumped, and the filter lines had gotten pushed full of solid waste. This repair cost thousands of dollars and could have been prevented. Every year we get dozens of calls to replace lateral systems that have failed. Sometimes these systems were too small, sometimes they were improperly installed, Almost always, they were not designed for automatic dish washers and washing machines and the extra water use associated with them, and in most cases the tank had not been pumped, and the baffles had not been checked. These systems almost always wind up being replaced with an aerobic unit, at a cost of several thousand dollars. So... Don't feel bad when you have to spend a few hundred dollars having your aerobic system repaired or maintained. It beats having to spend a few thousand dollars to replace a failed conventional system.

This information that I have compiled for your use has been derived from my experiences in this industry that spans over 15 years of direct experience in installing all types of septic systems on residential and commercial applications. I hope that you use this information to help you in the day to day operation of your new wastewater system. As a contractor, I have always strived to install the best products that I could find. Over all our customer satisfaction rate has been extremely high, with only a few customers that we were unable to satisfy. I will help you with any problem that you encounter, so long as you are willing to help yourself by following the guidelines set forth in the owners manual given to you with your system, and the suggestions given to you in this publication. If you follow this information, your system should work properly. How well your system works and how long it lasts is your responsibility. We are in the business of properly installing state approved septic systems and providing the absolute best follow up service that money can buy. We strive to keep parts in stock for your system, and if we do not have it, we will get it for you.

Thank you, James Killion, President KIL-CON, Inc

.References: National small flows clearinghouse, Aquaklear Owners manual

