

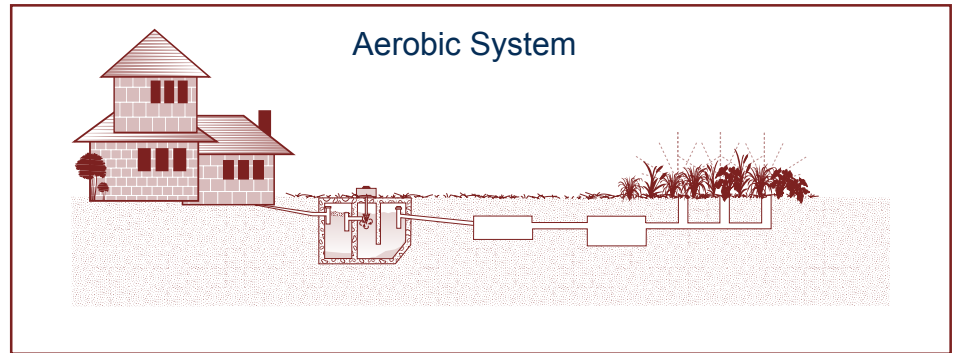
# AEROBIC SYSTEMS

## WHAT ARE THEY?

**A**erobic treatment systems are on-site sewage disposal systems that use aeration to treat wastewater and surface application to dispose of the treated wastewater. Since aerobic systems do not rely on subsurface absorption, they may be used in any type of soil. They can also be used to replace subsurface systems that are failing due to high groundwater and/or poor soil.

## HOW DO THEY WORK?

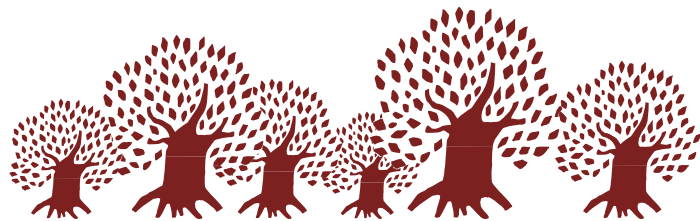
Aerobic treatment systems consist of: an equalization tank, an aeration chamber, a disinfection chamber and surface application. The equalization tank, which may be built into the unit or may be a separate tank, acts like a septic tank and separates the solids from the liquids (effluent) before the liquids flow into the aeration chamber. Treatment of the effluent occurs in the aeration chamber when air is injected into the wastewater, which causes the natural bacteria begin to break down and digest the organic material found in the wastewater. After being treated in the aeration chamber, the treated effluent is disinfected in the pump tank with chlorine or ultraviolet (UV) irradiation.



Once disinfected, the effluent is suitable for surface application and the pump tank pumps the disinfected effluent to a distribution system that uses a sprinkler system for surface application. The sprinkler system is timed to automatically spray the effluent at night (1am-6am) over a large vegetated area. (Only effluent that has been properly treated and disinfected, such as that produced by aerobic treatment unit or constructed wetland, can be utilized for surface application.) Most of the water evaporates and the rest is absorbed and utilized by the vegetation.

Generally, aerobic systems require less land area than other on-site sewage disposal systems. However, there has to be sufficient land area available to allow the treated effluent to evaporate and/or be absorbed without creating any accumulation or runoff. The surface application area must support vegetative cover of grasses, shrubs or trees, and must be maintained at all times.

Estimated or actual water usage and the net evaporation rate for the area are used to determine the actual size of a particular system.



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## MAINTENANCE

DEQ regulations require a lifetime maintenance contract. Although some maintenance may be done by the homeowner, most should be performed by a professional.

## AEROBIC SYSTEMS

### Advantages

- Can be used to correct many failing systems.
- Produce a high quality effluent.
- Are suitable for use in nearly any soil condition.
- Do not require a large area.



### Disadvantages

- Are expensive to install, maintain and operate.
- May require more maintenance than other on-site systems. All wastewater disposal systems that rely on mechanical parts have the potential to breakdown.
- If any part of the system fails, wastewater will not receive complete treatment, and will result in improperly treated wastewater being discharged into the environment.
- Have a potential problem of downwind drift from the sprinkler system. It is important to observe distance from property line requirements and to properly install sprinkler heads.



## TIPS TO AVOID TROUBLE

Have a maintenance contract. Regulations require a maintenance contract to be in place for the life of the system. This will insure that all mechanical parts receive proper maintenance.

Aerobic units are designed to treat a specific volume of wastewater and to process only household wastewater. If toxic or hazardous materials enter the system, the biological process may be affected and cause improperly treated wastewater to be discharged into the environment. (Normal household chemicals are okay to use.)

Check the disinfecting system on a regular basis. Proper disinfection will greatly reduce the risk of pathogens in the discharge.

Install the surface application system in a low traffic area to avoid damage to the sprinkler system.

Maintain the vegetative cover in the surface application area. Do not allow growth to impede spray of the sprinkler heads.

Always provide a safe buffer zone around the surface application area.

As is the case with all on-site systems, it is critical to observe good water conservation practices.