



# Calvert County Environmental Commission

## WASTEWATER DISPOSAL SYSTEMS

### What is wastewater? How is it handled? What kinds of wastewater disposal systems are used in Calvert County?

Wastewater is sewage and other types of water leaving residences, municipal buildings, and businesses through a plumbing system. Three types of “wastewater disposal systems” used in Calvert County are:

1. Publicly-Owned Treatment Works (POTW), a.k.a. “a sewer system.”
2. Privately-operated treatment systems are financed and built by a developer to service a specific development. The Calvert Gateway Shopping Center in Dunkirk is an example of a privately-operated system.
3. A septic system comprised of a septic tank and a drain (or leach) field. There are two general types of septic tanks:
  - (a) A conventional (“traditional”) septic tank, which is passive. Wastewater flows into the septic tank where the solids settle to the bottom of the tank and some degree of biological treatment occurs, breaking down waste; liquid waste flows into the drain (“leach”) field.
  - (b) A Best Available Technology (BAT) pre-treatment system reduces the nitrogen content of the wastewater in addition to breaking down the conventional pollutants in wastewater. A BAT system consists of an advanced pretreatment unit and the associated drain (or leach) field. Aeration is used to promote biological action. An electrical pump moves wastewater from the holding tank to discs holding sheets of a synthetic fabric where microorganisms, such as bacteria, process and remove impurities like nitrogen. This effluent is recirculated between the tank and filter and then discharged into the drain field. Through this process, organic nitrogen and ammonia in the sewage are converted to a harmless nitrogen gas, instead of leaking as biologically-available nitrogen into streams and groundwater.

BAT systems can remove an additional 50–75% of total nitrogen before the effluent enters the drain field. Even a regularly maintained conventional septic system can remove only about 10% of available total nitrogen from the effluent before it flows to the drain field. Studies have shown that BAT pre-treatment systems also remove approximately 98% of sewage impurities, thereby extending the life of your drain field.

### As an owner or user of septic systems, what should I know to make them function most effectively?

It is important to know which system you use and its size, so it can be maintained properly. Excessive use of garbage disposals should be avoided with septic systems, as this will accelerate the accumulation of solids in the tank and require more frequent pump-outs.

### Why does my septic tank need to be pumped out?

Pumping septic tanks removes accumulated solids in the tank and reduces the quantity of solids entering the drain field. If pumping is not done on the recommended scheduled, the drain field will eventually become clogged, fail, and an expensive replacement will be needed. In addition, regular septic tank pumping can aid in reducing the flow of nutrients, particularly nitrogen, into Chesapeake Bay.

### Where do the solids and effluent pumped from my septic tank end up?

The material pumped from septic tanks is transported to a local wastewater receiving site like the

Solomons Wastewater Treatment Facility (a POTW) where it is treated as wastewater. Typically, a wastewater receiving site is far more efficient at removing nitrogen from the effluent than the homeowners' septic system.

### **How often does my septic tank need to be pumped out?**

That depends on the type and size of your septic tank and the number of people in your household. A general recommendation for conventional septic tanks is every 2 to 3 years. A BAT system should be pumped every 8 to 12 years. Your septic service contractor should be able to tell you if your pumping frequency is sufficient to maintain a functioning drain field.

More information about septic system maintenance can be found at:

[Septic Systems and Their Maintenance | University of Maryland Extension](#)

### **What should I not flush or put into my wastewater disposal system?**

For all systems in Calvert County: do not flush or pour down the drain the following: unused medications; flammable or toxic products; petroleum products; pesticides, weed killers, fertilizer, or other lawn or garden chemicals; paint or paint thinner; large amounts of cooking grease; any type of disposable diaper or wipe (even if it says "flushable"); feminine hygiene products; or condoms.

- Privately-operated treatment systems: the developer or development management should provide residents and businesses with a list of any additional restrictions.
- Both BAT and traditional septic systems: remember that these systems rely on healthy bacteria for proper function, so it critical to avoid killing those bacteria with toxic chemicals.
  - RV wastes should not be discharged into septic systems.
  - Washing machine lint discharge should be minimized by cleaning the filter before every wash load.
- For traditional septic systems: avoid products containing lye (chemical drain cleaners, oven cleaners); floor wax and other waxes; products with high levels of chlorine (bleach, pool chemicals, some automatic toilet bowl cleaners); and laundry detergents or dish detergents containing phosphates (which can increase algae growth in water bodies).
- For BAT systems: Do not flush water softener backwashes or special additives that are advertised to enhance the performance of septic tanks or systems.

### **Are there specific types of septic systems that can/must be used in the Critical Area and what should homeowners do to comply with regulatory changes?**

If you live in a Critical Area (within 1,000 feet of tidal waters) in Calvert County, all new construction and replacement of older conventional septic systems must use BAT/nitrogen-reducing septic systems

### **What is the installation cost of a BAT septic system compared to a conventional septic system?**

The current cost of a BAT pre-treatment septic system is typically between \$20,000 and \$25,000. A conventional septic tank will cost about \$5,000 to \$7,500 to install. These costs will depend on the length of the drain field and the size of the septic tank. A permit (fee required) is the same for both systems. If a drain field needs to be replaced, that additional cost may run from \$5,000 to \$8,000.

It may be possible to obtain grants from the Bay Restoration Fund (BRF) for financial and technical assistance to upgrade your outdated and less effective conventional septic tank with a BAT pre-

treatment system. Priority for grants is given to homeowners with failed or failing septic systems in the Critical Area, although those not within the Critical Area can also apply for a grant. Your ability to pay also is a factor. Where allowed, the BAT system purchase and installation costs are typically covered by the grant. More information can be found on the [Calvert County BRF webpage](#) and on the [Maryland Department of the Environment's BRF webpage](#).

**County residents interested in upgrading to a more efficient nitrogen-reducing system should contact Environmental Health division within the Calvert County Health Department (410-535-3922).**

Reference: [Recommendations of the On-Site Wastewater Treatment Systems Nitrogen Reduction Technology, Expert Review Panel](#).

This document was written by the Environmental Commission for informational purposes only and is not official Calvert County policy.