

Septic System Monitoring

What is It?

There are many factors that can cause a septic system to fail. By establishing a program for ongoing monitoring and regulation of septic systems, your local government can reduce the number of septic system failures and the unacceptable environmental consequences that result. These programs typically include:

- Educating and encouraging property owners to monitor and maintain their septic systems.
- Adopting regulations that require a minimum level of monitoring and maintenance of septic systems.
- Providing incentives for replacement of defective septic systems.

How to do it

1. **Educate the community.** Develop and mail out a brochure to educate homeowners about how to check their septic system for problems. Emphasize the amount of money a homeowner will save if problems are detected early.
2. **Establish a user-friendly reporting mechanism.** Make it easy for concerned citizens to report problems with septic systems. Publish a hotline number where people can anonymously report any unpleasant odors or unusual taste of well water. Always respond promptly to these calls.
3. **Adopt monitoring regulations.** These regulations could substantially reduce the possibility of septic system failures. They should, at minimum, require:
 - Local septic system distributors to provide a statement giving basic information about operation and ongoing maintenance of the system to each purchaser at the time of sale.
 - Regular (such as bi-annual) inspections of each septic system by your local government. The inspection should include sampling the soil and water around the system for contamination.
 - Regular pumping and cleaning of each septic system. (The cost of pumping, cleaning, and inspecting of a septic system generally ranges from \$125 to \$350.)
 - A schedule of fines for violations of the above requirements, including penalties for homeowners who do not properly maintain their septic systems.Involve key stakeholders and hold required public hearings (see O.C.G.A. 36-66-4) before adoption of these new regulations
4. **Create a septic system database.** Maintaining records of each septic system's age, condition, test results, and when they were last serviced will be instrumental in carrying out the maintenance regulations adopted above.

Things to consider before using this tool

- Effective monitoring of septic systems requires an adequately trained staff. Technical knowledge of the workings of septic systems, and typical causes of failure is necessary for performing needed inspections and for determining when repairs or replacement are required.
- Enforcing monitoring regulations on homeowners and private businesses can be a sensitive issue. Consult your local attorney about use of this approach. At minimum, you should bolster legal defensibility by including strong policy statements supporting the septic system monitoring program in your local comprehensive plan. If your local government is sued, Georgia courts are more likely to uphold regulations that can be shown to implement community objectives detailed in the officially adopted local comprehensive plan.

Additional Information on Regulating Septic Systems

Background

- Do you hear complaints about odors or pollution problems resulting from failed septic systems in your community?
- Are septic tanks being haphazardly sited in areas of steep slopes, shallow bedrock, high water tables, close proximity to surface water or wells, or frequent flooding?
- Do you fear that your local water supply may be threatened by failure of improperly maintained septic systems?
- Are older subdivisions in your community relying on septic systems installed more than 20 years ago?

If your community is like the typical Georgia city or county, many new and existing developments use on-site septic systems for sewerage treatment. What you may not realize is that these systems can cause significant environmental problems if they were not properly installed, adequately maintained, or promptly replaced at the end of their useful life (see *How Septic Systems Work and How They Fail*). The environmental problems that can result from septic systems include:

- Pollution of wells, streams or lakes. When septic drainfields are located in areas where soils, particularly those with high clay content, are not suitable for absorbing septic effluent, this untreated effluent can run off into nearby wells or water bodies.
- Groundwater pollution. When septic drainfields are located in areas where sandy soils allow too rapid draining of septic effluent, this effluent will leach into the groundwater before it can be completely purified by slow filtration and natural processes.
- Metals contamination. Due to oxidation of the septic effluent, the acidity of surrounding soils can increase. This acidity decreases the soil's potential for metal absorption, which can lead to dissolved wastewater metals leaching into groundwater or nearby streams. Metal contamination can be very harmful to aquatic organisms and can seriously impair drinking water quality.
- Fecal coliform contamination. Septic system treatment failures will produce fecal coliform, which is associated with diseases such as diarrhea, hepatitis A, dysentery, typhoid fever, cholera and salmonella.
- Algae blooms, fish kills, and depletion of macrophyte populations. As a septic system ages, its phosphate-adsorption capacity becomes depleted, leading to more nitrogen and phosphorus being carried into nearby streams, where it can cause fish kills and other environmental consequences.

The comprehensive septic system management approaches described below are designed to reduce the likelihood of undesirable environmental impacts from septic systems. Even if your community is not currently facing septic system failures, implementing effective septic tank regulations now will help ensure that

you will not be dealing with septic-related environmental cleanup issues in coming years.

How Septic Systems Work and How They Fail

Septic tanks are underground tanks that hold sewage. Sludge and solids sink to the bottom of the tank (to be periodically pumped out and disposed of) while the liquid waste comes to the top of the tank and flows into through a network of shallow pipes spread over a large land area (the drainfield) where it is absorbed into the ground. In a properly functioning septic tank this liquid waste is gradually released, either to be absorbed by plants or to sink through the subsoil while being purified, recycled through natural biochemical reactions, and released harmlessly into the groundwater. Periodically, the non-degradable contents of the septic tank need to be pumped out and hauled off for treatment. This is infrequently done. Your community may wish to consider requiring property owners to pump out their septic tanks every three-to-five years.

There are many factors which can cause a septic system to fail. If a system is not properly monitored the pipes can become clogged, the tank can crack, or pipes can break. The older the tank the more susceptible it is to failure. Old metal tanks can rust out; pipes can be broken by tree roots, by construction activities, or by cars driven over drainfields. If a tank is not monitored, and pumping does not occur regularly, sludge accumulation can cause unclarified wastewater to be transmitted to the drainfield. Even a well-maintained system will eventually reach the end of its properly functioning life span. Many homeowners are relying on systems in use for twenty to thirty years which are in dire need of replacement. The drainfield can also lose its capacity for effective transmission of the effluent. If properly sited, drainfields can last 15 to 30 years, but poorly sited fields have failed as early as seven years after construction.