



DECENTRALIZED WASTEWATER TREATMENT: A SENSIBLE SOLUTION



Many communities are considering decentralized wastewater treatment and the economic and environmental advantages these types of systems can offer. Today, decentralized treatment can provide the safety and reliability of conventional large-scale treatment, and can also offer many additional benefits to communities.

WHAT IS DECENTRALIZED WASTEWATER TREATMENT?

Decentralized wastewater treatment consists of a variety of approaches for collection, treatment, and dispersal/reuse of wastewater for individual dwellings, industrial or institutional facilities, clusters of homes or businesses, and entire communities. An evaluation of site-specific conditions is performed to determine the appropriate type of treatment system for each location. These systems are a part of permanent infrastructure and can be managed as stand-alone facilities or be integrated with centralized sewage treatment systems. They provide a range of treatment options from simple, passive treatment with soil dispersal, commonly referred to as septic or onsite systems, to more complex and mechanized approaches such as advanced treatment units that collect and treat waste from multiple buildings and discharge to either surface waters or the soil. They are typically installed at or near the point where the wastewater is generated. Systems that discharge to the surface (water or soil surfaces) require a National Pollutant Discharge Elimination System (NPDES) permit.

These systems can:

- Serve on a variety of scales including individual dwellings, businesses, or small communities;
- Treat wastewater to levels protective of public health and water quality;
- Comply with municipal and state regulatory codes; and
- Work well in rural, suburban and urban settings.

WHY DECENTRALIZED WASTEWATER TREATMENT?

Decentralized wastewater treatment can be a smart alternative for communities considering new systems or modifying, replacing, or expanding existing wastewater treatment systems. For many communities, decentralized treatment can be:

- **Cost-effective and economical**
 - Avoiding large capital costs
 - Reducing operation and maintenance costs
 - Promoting business and job opportunities
- **Green and sustainable**
 - Benefiting water quality and availability
 - Using energy and land wisely
 - Responding to growth while preserving green space

- **Safe in protecting the environment, public health, and water quality**
 - Protecting the community's health
 - Reducing conventional pollutants, nutrients, and emerging contaminants
 - Mitigating contamination and health risks associated with wastewater

THE BOTTOM LINE

Decentralized wastewater treatment can be a sensible solution for communities of any size and demographic. Like any other system, decentralized systems must be properly designed, maintained, and operated to provide optimum benefits. Where they are determined to be a good fit, decentralized systems help communities reach the triple bottom line of sustainability: good for the environment, good for the economy, and good for the people.

The EPA Decentralized Wastewater Memorandum of Understanding (MOU) Partnership, created in 2005, has served as an ongoing cooperative relationship between the EPA and Signatory Organizations to effectively and collaboratively address management and performance issues pertaining to decentralized systems.

WHERE IT'S WORKED

Loudoun County, VA

Loudoun Water, in Loudoun County, Virginia (a Washington, D.C., suburb), has adopted an integrated approach to wastewater management that includes purchased capacity from a centralized plant, a satellite water reclamation facility, and several small, community cluster systems. The approach has allowed the county to maintain its rural character and created a system in which growth pays for growth. Developers design and construct cluster wastewater facilities to Loudoun Water standards at their own cost and transfer ownership of the system to Loudoun Water for continued maintenance. The program is financially self-sustaining via rates that cover expenses. For more information: <http://www.loudounwater.org/>

Rutherford County, TN

Consolidated Utility District (CUD) of Rutherford County, Tennessee, provides sewer services to many of its outlying customers through an innovative system. The system being used is often referred to as a septic tank effluent pumping (STEP) system which consists of approximately 50 subdivision wastewater systems, all of which contain a STEP system, a recirculating sand filter, and a large effluent drip dispersal system. All of the systems are owned and managed by the Rutherford County CUD. The system allows for high density development (subdivisions) in areas of the county where city sewer is not available or soil types are not conducive to conventional septic tank and drain field lines. The 1,500-gallon septic tank is equipped with a pump and control panel located at each residence for controlled discharge of wastewater to a centralized wastewater collection system. For more information: <http://www.cudrc.com/Departments/Waste-Water.aspx>

Package plant



Drip irrigation field



ADDITIONAL RESOURCES

U.S. Environmental Protection Agency Office of Wastewater Management Decentralized Program – www.epa.gov/owm/onsite

Water Environment Research Foundation Decentralized Systems – <http://www.werf.org/ifa/k/DecentralizedSystems.aspx>

For more information on the individual MOU Partners, click on the logos below or go to <http://www.epa.gov/owm/septic>.



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