Decentralized Onsite Systems

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May 2017

EPA & the Decentralized Wastewater Partnership

- In 1996, EPA published a "R*esponse to Congress on the Use of Decentralized Wastewater Treatments Systems*." EPA concluded that decentralized (septic) systems are an integral component of our nation's wastewater infrastructure and can protect public health and water quality if they are properly planned, sited, designed, installed and maintained.
- *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.*
  - *Additional MOUs signed in 2008 & 2011*

2014 Decentralized Wastewater Management MOU

- National Association of Towns and Townships (NATaT)
- National Association of Wastewater Technicians (NAWT)
- National Environmental Health Association (NEHA)
- National Environmental Services Center (NESC)
- National Onsite Wastewater Recycling Association, Inc. (NOWRA)
- Rural Community Assistance Partnership (RCAP)
- Water Environment Federation (WEF)
- Association of Clean Water Administrators (ACWA)
- Ground Water Protection Council (GWPC)
- State Onsite Regulators Alliance (SORA)
- Water Environment Research Foundation (WERF)
- Association of State Drinking Water Administrators (ASDWA)
- Association of State and Territorial Health Organizations (ASTHO)
- Center for Disease Control and Prevention (CDC)/Agency for
- Toxic Substances and Disease Registry (ATSDR)
- NSF International
- International Association of Plumbing and Mechanical Officials (IAPMO)
- National Rural Water Association (NRWA)
- National Association of Home Builders (NAHB)

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.

WHAT IS DECENTRALIZED WASTEWATER TREATMENT (cont.)?

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.

Rural Community Development

Community Onsite Wastewater Cluster System

EPA Decentralized Models

- https://www.epa.gov/sites/production/files/2015-06/documents/decentralized-case-studies-2012.pdf
- Five Management Models
  - Homeowner Awareness
  - Maintenance Contract
  - Operating Permit
  - Responsible Management Entity (RME) – 3rd Party
  - Responsible Management Entity (RME) - Ownership

Model 2 – Maintenance Contracts

- **Listed Projects on EPA Website**
  - **Albemarle, North Carolina ,**
  - **Keuka Lake, New York,**
  - **Lake Panorama, Iowa**
- **Currently used in Florida with ATUs/PBTS**
  - **More on individual sites**

Management Model 3: Operating Permits

- Listed Projects on EPA Website
  - Hamilton County, Ohio
  - Monroe County, Florida
  - The Sea Ranch, California
  - Auburn Lake Trails, California
- Currently used in Florida for PBTS
  - System tied to deed
  - Mainly for individual systems

MONROE COUNTY, FLORIDA

PROBLEM

Monroe County, Florida, is home to the Florida Keys and a complex and dynamic marine ecosystem—including the world's third-largest coral reef. The county is also home to 30,000 individual wastewater systems that may contribute to excessive nutrients in near shore and offshore waters, leading to the deterioration of the reef and marine resources. Additionally, more stringent wastewater treatment standards adopted by the state also created challenges for conventional onsite systems.

SOLUTION

A state wastewater treatment standards law targeting Monroe County now requires the countywide use of advanced nutrient reduction systems, renewable operating permits, maintenance contracts, and annual inspections.

Management Model 4: Responsible Management Entity (RME) Operation and Maintenance

Elements of Management Model 4

- Management Model 4 includes two key elements:
  - **Professional operation and maintenance services provided through an RME (public or private)**
  - **Regulatory agency oversight provided through operating permits issued directly to the RME (In Florida permit is issued to HO)**
- Management Model 4 programs typically involve: (FL only uses specific elements of this model)
  - **The RME has responsibility and legal authority to operate the systems in order to meet regulatory and performance requirements**
  - **The regulatory agency oversees and issues permits to the RME in order to ensure compliance**
  - **The RME inspects systems and conducts routine operation and maintenance**
  - **System owners pay for new construction, repairs, upgrades, and system replacement that the RME implements**

Management Model 4: Responsible Management Entity (RME) Operation and Maintenance

- **Listed Projects on EPA Website**
  - **Otter Tail Lake, Minnesota**
  - **Peña Blanca, New Mexico**

Management Model 5: RME Ownership

Management Model 5 includes these key elements:

- **RME ownership and management of treatment systems**
- **Risk evaluation and prioritization when planning and designing systems**
- **Permit requirements with performance criteria for system operation**
- **Procedures for conducting compliance monitoring and tracking**
- **Certification program requirements for service providers**
- **Oversight of rate structure and financial management**

Management Model 5: RME Ownership

- Listed Projects on EPA Website
  - Blacksburg, Virginia
  - Phelps County, Missouri
  - Shannon City, Iowa
- Discussion on current project in FL by Mark Repasky, PE

EPA's Resources

- https://www.epa.gov/septic

Questions/Comments?