

Management of Nutrients from Onsite Systems in the MSRB

Strategies, Technologies, and Tools

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Onsite (Decentralized) Wastewater Management in the U.S.

- Nearly 25% of the nation is served by onsites
- Onsites consist of:
 - Individual systems (homes)
 - Cluster (community) systems
 - Package plants
- Nationally, management lies with the states
 - typically with Depts. of Health but in many, also with the DEP/Q
 - Large capacity systems (Class V wells) regulated by EPA

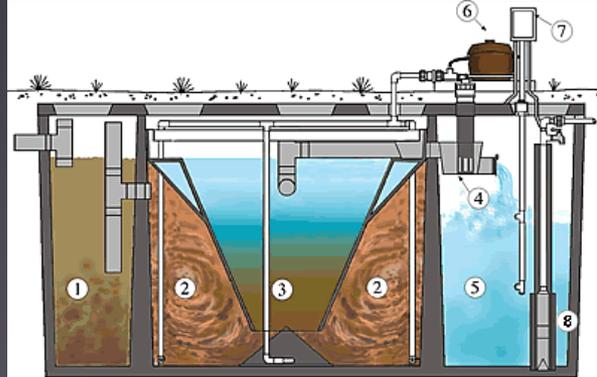
EPA's Decentralized Wastewater Management Program (Voluntary)

- Onsite Manual , 2002
- Voluntary Management Guidelines , 2003
 - Adopted by 15 states to date
- Program Strategy, 2005
- Management Handbook , 2005
- MOU Partnership – grown to 16 partners since 2005 representing state and federal agencies, academia, non-profits, and industry



Technologies...

Examples of Advanced Treatment Technologies



Aerobic Treatment Unit

Textile Filter

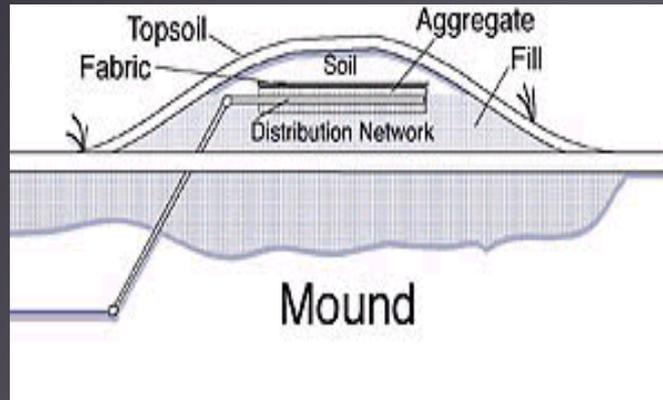


Intermittent Sand Filter

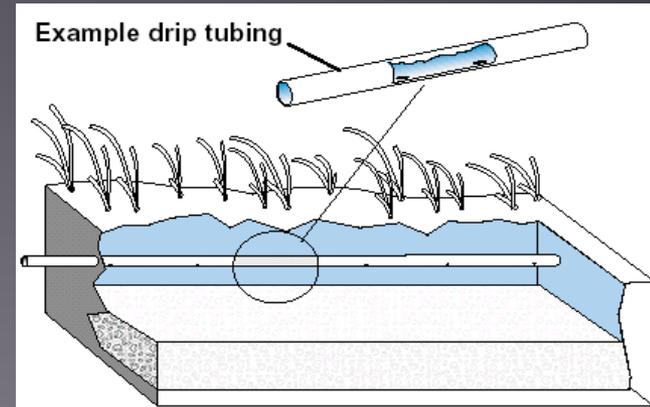


Recirculating Sand Filter

Examples of Dispersal Technologies



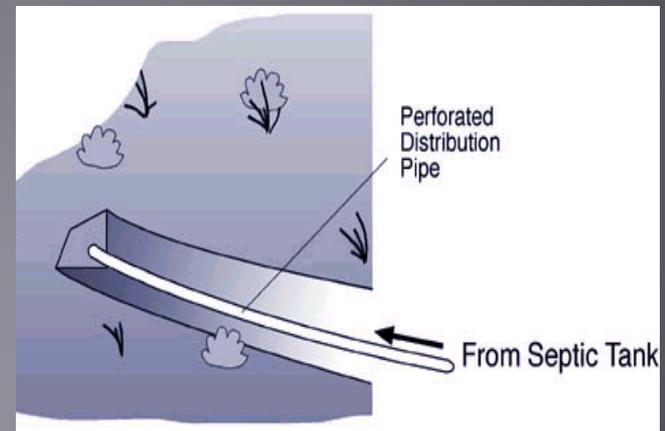
Mound System



Drip Irrigation

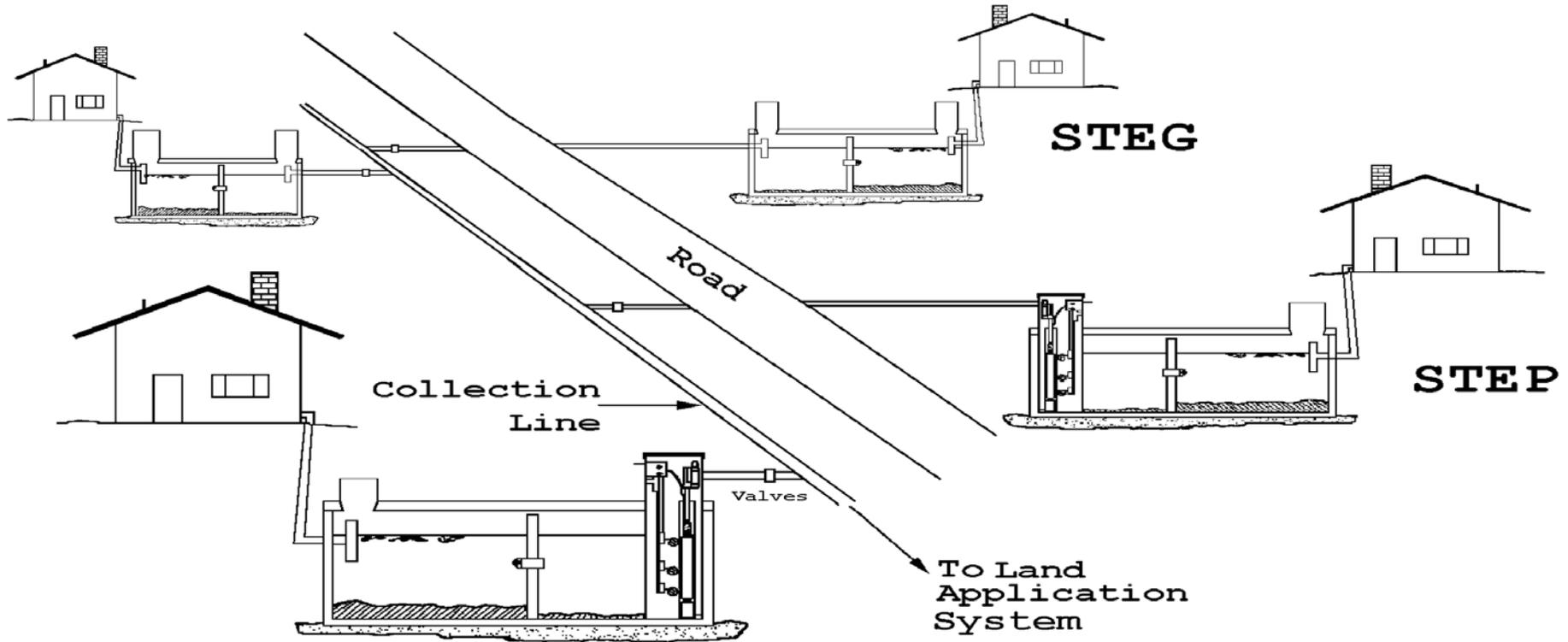


Chamber System



Contour Trench

STEP/STEG Collection System



- ❑ Effluent from a septic tank effluent gravity (STEG) or septic tank effluent pump (STEP) system is discharged into a collection system.
- ❑ A typical STEP/STEG collection system consists of relatively small diameter PVC pipe buried with enough cover to protect the pipe from surface damage and freezing.
- ❑ The main advantage of a pressure sewer is that it is not required to be on-grade; that is, it can follow the topography.
- ❑ STEP collection systems have been found to cost approximately 25 to 30 percent of a conventional gravity collection system in a reasonably hilly terrain.
- ❑ They are much easier to construct and have less impact on the neighborhoods as a result of their construction.



Management Approaches...

Performance-based Approach

- Siting and design:
 - Designing a system that meets performance requirements based on site conditions
 - rather than requiring the site to meet prescriptive criteria (lot size, soils, depth to groundwater, etc.) needed for the system
- System management:
 - Requires management programs that provide perpetual system oversight
 - to protect public health and water resources

Management Guideline Recommendations

- Use cluster systems with advanced technology community-wide systems and densely populated areas.
- Improve the approval process for alternative technologies
- Perpetual management contracts with trained and certified operators for all advanced N-removal systems
- Responsible management entity (RME) for cluster and nonresidential systems
- Data management to confirm compliance
- Require inventories and inspections of all systems

Tools Available from EPA

EPA Main page: www.epa.gov/owm/septic

- Onsite Manual , 2002
 - http://www.epa.gov/owm/septic/pubs/septic_2002_osdm_all.pdf
- Voluntary Management Guidelines , 2003
 - http://www.epa.gov/owm/septic/pubs/septic_guidelines.pdf
- Program Strategy, 2005
 - http://www.epa.gov/owm/septic/pubs/septic_program_strategy.pdf
- Management Handbook , 2005
 - http://www.epa.gov/owm/septic/pubs/onsite_handbook.pdf
- MOU Partnership
 - http://cfpub.epa.gov/owm/septic/septic.cfm?page_id=260
- Wiki
 - https://wiki.epa.gov/septic/index.php/Main_Page
- Discussion Forum
 - <http://forum.citizen.apps.gov/EPAwastewaterforum/>
- EPA Demonstration Projects
 - http://cfpub.epa.gov/owm/septic/septic.cfm?page_id=279

Tools Available from Partners

- Research and studies
 - www.werf.org/i/a/k/DecentralizedSystems.aspx
- Glossary
 - www.onsiteconsortium.org/glossary.html
- Model Regulatory Code
 - www.modelcode.org/
- NEHA Installer Credential
 - www.neha.org/onsite
- RCAP Publications
 - www.rcap.org/commpubs

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