

MOM is Always Right

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By

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What is MOM

- M - Monitoring and maintaining systems
- O – Operational oversight of systems
- M – Management of individual systems in a service area and overall management of the program
- And MOM is always the correct approach to onsite infrastructure

Small and Decentralized Systems

- Protect public health
- Protect environmental quality
- Protect community image and value
- Contribute to local tax base
- Pose little threat to groundwater and surface water
- Proper design, installation, operation and management essential
- System age influences performance and malfunctions have been reported leading to loss of confidence in sustainability

Answer These

1. What constitutes a “successful” Management Entity or RME?
2. What are the commonalities of successful RMEs?
3. What is the “critical mass” necessary to achieve financial success and operational sustainability?

Sustainable Infrastructure

- Onsite systems are a critical part of sustainable wastewater management efforts – we can not sewer the country, no TMDL available
- Individual system management and program management necessary

TBL approach may help address sustainable business challenges in management efforts

Motivation	Activity	Technical/Management Innovation
Finance (economy)	Resource recovery, material conversion, value added products	Industrial innovation, new treatment technology, irrigation, nutrient recovery, biomass, algae
	Operational efficiency	Asset management, EMS,
	Energy recovery and use	Fuel cell, anaerobic digestion,
Sustainability (environment)	Watershed assessment	Distributed systems
	Energy optimization	Energy recovery, improved efficiency (VSD pump),
	Green Infrastructure	Green roof, porous paver, local management
Social issues, EJ, Community well-being	Planning	Targeted improvements
	Greening	Managed distributed systems
	Partnering	Bio-resource recovery

Federal (EPA) Perspective

- *“Adequately managed decentralized wastewater systems are a cost-effective and long-term option for meeting public health and water quality goals”* (U.S. EPA, 1997 Report to Congress)
- Four pillars of sustainable infrastructure for water and wastewater:
 - **Better management** of water and wastewater utilities,
 - Rates that reflect the **full-cost pricing** of services,
 - **Efficient water** use, and
 - **Watershed approaches** to protection.
- American Recovery and Reinvestment Act (ARRA) Green Project Reserve (GPR) includes ***decentralized wastewater treatment solutions*** under “Environmentally Innovative Projects” heading

Recognition

- The USEPA recognizes onsite and decentralized water, wastewater, and stormwater systems as a permanent and essential element of the nations wastewater infrastructure...(Grumbles, 2005)
- Onsite systems **MUST** be managed as an element of infrastructure...
- Partnerships Essential

Federal Funding Sources

Funding Decentralized Wastewater Treatment Systems with the Clean Water State Revolving Fund or USDA

- www.epa.gov/cwsrf
- www.usda.rus
- www.epa.gov/wifia
- Funding for individual systems or establishing management programs

INTRODUCTION

Approximately one in five households in the United States rely on decentralized wastewater systems, such as single-family home septic systems or community cluster systems, for wastewater treatment and disposal. For communities relying on decentralized systems, costs to repair, replace, or install systems can be expensive, and these costs are often the homeowner's responsibility. EPA's [Financing Decentralized Wastewater Treatment Systems: Pathways to Success with the Clean Water State Revolving Fund Program](#) Guide helps community leaders, local and state decentralized



wastewater treatment programs and state Clean Water State Revolving Fund (CWSRF) administrators understand how the CWSRF can be a viable source of financing for decentralized systems.

The Guide details (1) the CWSRF Program; (2) How to Use the CWSRF to Finance Decentralized System Projects; (3) Options for CWSRF Loan Repayment; and (4) Initiating a Financing Program for Decentralized Wastewater Systems with the CWSRF. This summary sheet highlights key content from these sections.

1 The CWSRF Program

EPA's CWSRF Program, administered individually by each state and Puerto Rico, provides low-cost financing for wastewater infrastructure and water quality projects, including decentralized wastewater system projects. The CWSRF functions like an environmental infrastructure bank, providing funding, primarily in the form of below-market interest rate loans to eligible borrowers. However, it is important to note that States are afforded extensive flexibility in administering their program, including defining project and applicant eligibilities, financing terms, and loan forgiveness options for qualified borrowers. Contact your state for [details](#).

CWSRF Financing Fundamentals



Is my project eligible for CWSRF funding?

- Planning and design
- Construction
- CWSRF CANNOT pay for *operations and maintenance* (O&M)

Your state's CWSRF staff can help you understand what costs may/may not be included in a CWSRF loan.



What kinds of projects are eligible?

- New septic system installation
- Repair/replacement projects
- Converting cesspools to septic
- Cluster systems or community package plants
- Certain fees associated with setting up a special district or a Responsible Management Entity



Am I eligible to apply?

The CWSRF may lend to:

- Communities, municipalities, townships, counties, political subdivisions
- Individual homeowners
- Citizen groups
- Non-profit organizations
- Public utility computers



What terms are available?

Within statutory limits, state CWSRF programs have a great deal of flexibility to offer borrowers, including leeway with:

- Interest rate and repayment loans
- Limited amounts of loan forgiveness
- Sculpted repayment structures to accommodate borrower cash flows

Check with staff in your state about how a CWSRF loan can be customized to fit your needs.

You are the future of a SUSTAINABLE onsite wastewater program -

- Some help from SORA, NOWRA, ASABE and technology
- Evolving rules and regulations
- Competent people to:
 - assess sites,
 - design appropriate systems,
 - permit those systems,
 - monitor, inspect and maintain systems, and
 - manage local and state programs
 - To include the public who benefit from these efforts

Needs for tomorrow

- Finance - funds for sustaining operations essential
- Rules – to enable and evolve
- Planning – to set appropriate goals and targets
- Organizations – with defined management tasks and responsibilities
- Communicate Performance Measures –
 - how do we report our success?
 - to whom?

Reasons

- Attention to management now encouraged at all levels (local, state, federal)
- Increasing levels of treatment and reliability require increased attention to MOM
- Increasing attention devoted to cumulative impacts on environment (TMDL capacities), politics and economic issues
- Acceptance of environmental consequences associated with treatment and surface discharge forcing reexamination of distributed treatment and utility concepts

Components of 21st Century Permanent and Sustainable Wastewater Management Program

- Technical Components

- Source
- Conveyance
- Sound, robust treatment
- Reliable dispersal
- Performance Monitoring
 - Measure
 - Monitor
 - Report

- Regulatory

- Appropriate rule and regulations
- Legal powers to collect and enforce

- Managerial/Financial

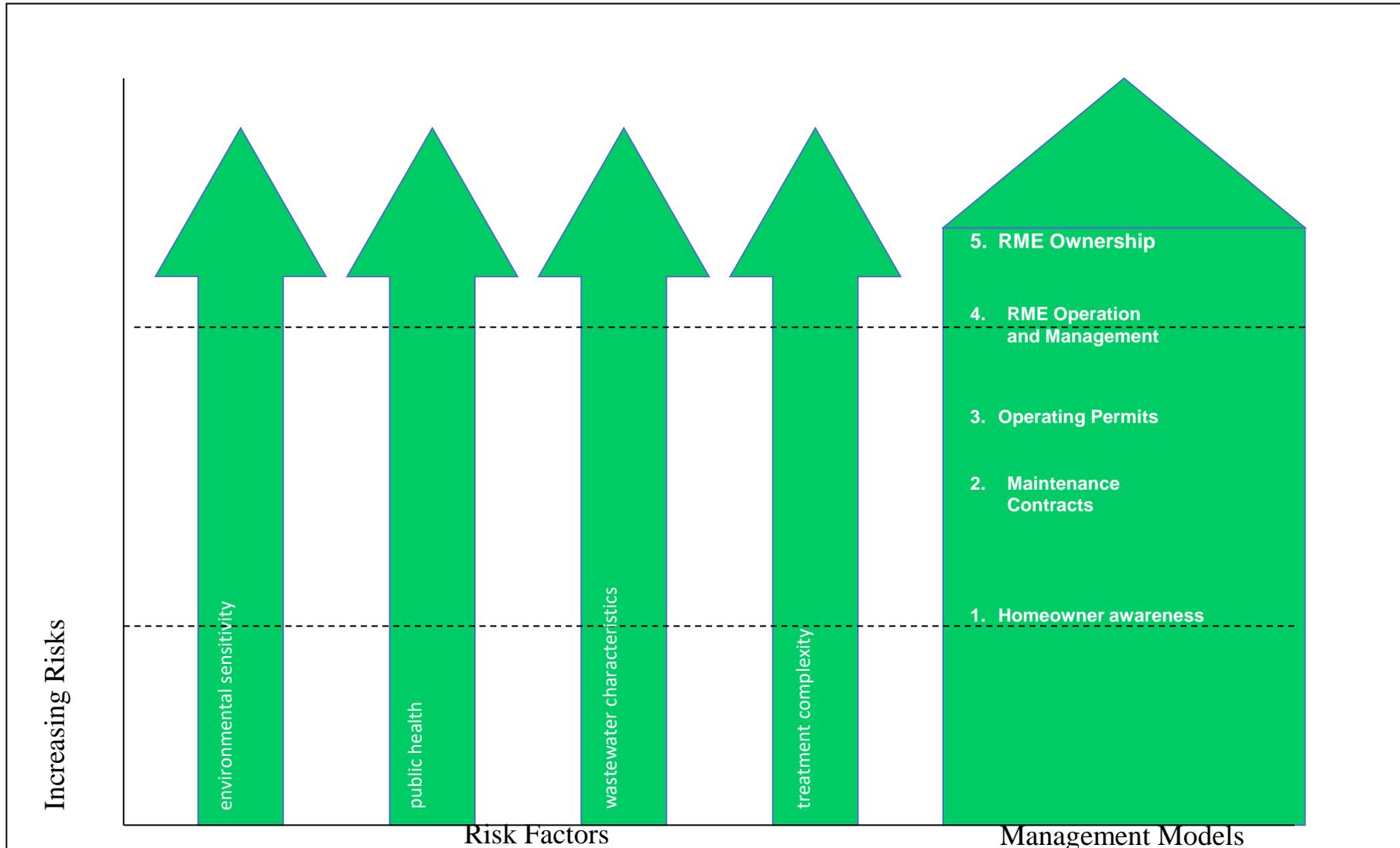
- Cost Recovery
- Asset management
- Personnel
- Organization

General management approach

- Management intensity must be tied to risk
 - Sensitivity of receiving water, local setting
 - Complexity & density of treatment systems
- Public/private management entity is necessary!
 - Example: sanitation district
 - Maintenance contracts
 - Operating permits
 - Managing onsite technology requires cost recovery from user
- Public agencies provide regulatory oversight

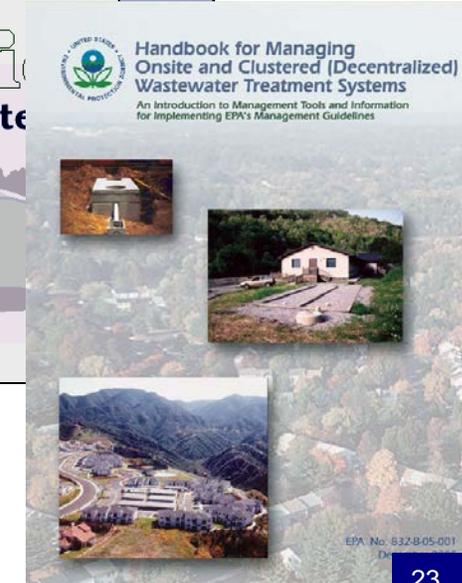
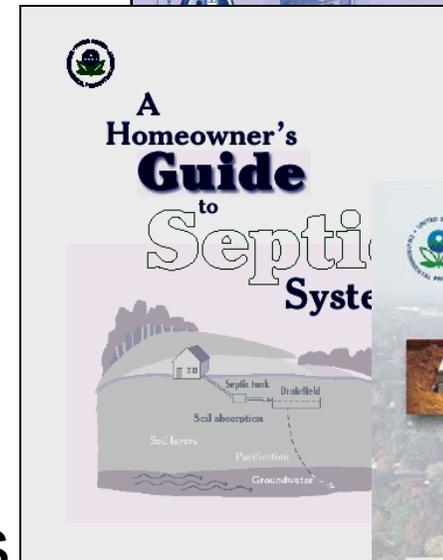
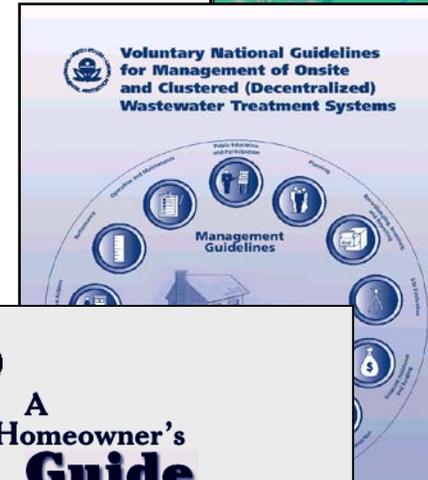


USEPA Management Guidelines

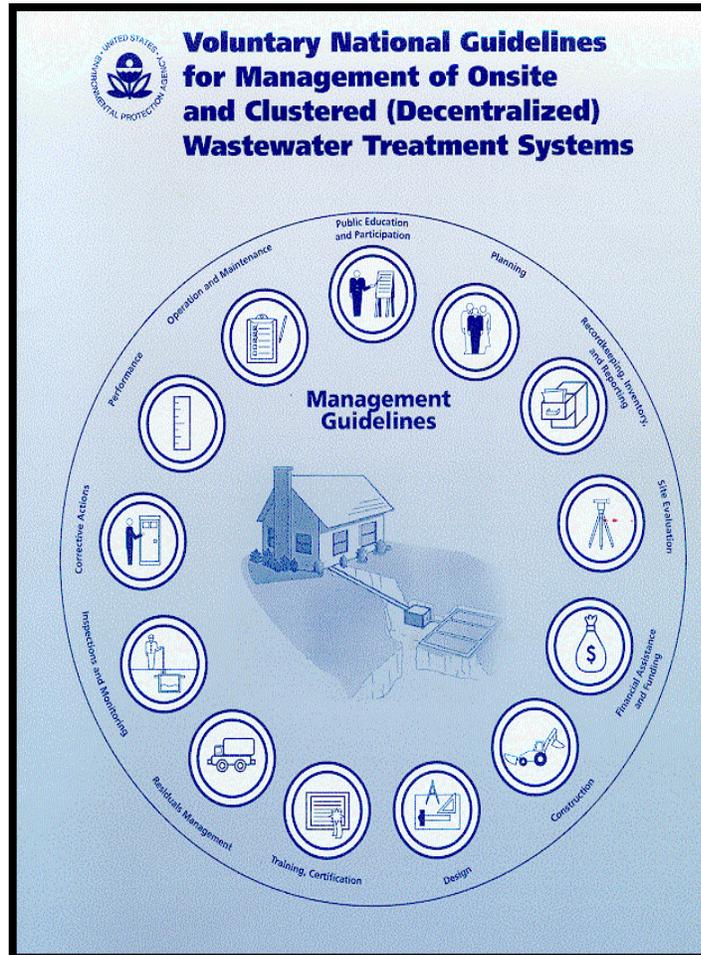


US EPA resources at www.epa.gov/owm/septic

- Design guidance
- Management guidelines
- Case studies
- Technology fact sheets
- State and local examples
- Research, demonstration projects, and other tools
- Funding and financing guides



Goals of the Management Guidelines



- To raise the level of onsite/cluster system performance through improved management programs
- To provide conceptual models that may be used by local units of government to assist them in upgrading their programs

Elements in a Comprehensive Wastewater Management Program

- Public Involvement
- Planning
- Performance Requirements
- Training & Certification/Licensing
- Site Evaluation
- Design
- Construction

Appendix A: Management Models

MANAGEMENT MODEL 3: OPERATING PERMITS

Objective: To issue renewable/revocable operating permits to system Owner that stipulate specific and measurable performance criteria for the treatment system and periodic submittals of compliance monitoring reports. The performance criteria are based on risks to public health and water resources posed by wastewater dispersal in the receiving environment. Operating permits allow the use of clustered or onsite systems on sites with a greater range of site characteristics.

PROGRAM ELEMENT	RESPONSIBLE PARTY	ACTIVITY*
PUBLIC EDUCATION AND PARTICIPATION	Regulatory Authority	<ul style="list-style-type: none"> Educate Owner/User on purpose, use, and care of treatment system. Provide public review and comment periods of any proposed program and/or rule changes.
	Service Provider	<ul style="list-style-type: none"> Be informed of existing rules, and review and comment on any proposed program or rule changes. Participate in advisory committees established by the Regulatory Authority.
	Owner/User	<ul style="list-style-type: none"> Be informed of purpose, use, and care of treatment system. Be informed of existing rules, and review and comment on any proposed program or rule changes. Participate in advisory committees established by the Regulatory Authority.
PLANNING	Regulatory Authority	<ul style="list-style-type: none"> Coordinate program rules and regulations with state, tribal, and local planning and zoning and other water-related programs. Evaluate potential risks of wastewater discharges to limit environmental impacts on receiving environments during the rule making process. Limit potential risks of environmental impacts from residuals management program and evaluate available handling/treatment capacities. Inform local planning authority of rule changes and recommend its evaluation of potential impacts on land use.
	Developer	<ul style="list-style-type: none"> Hire planners, certified site evaluators, and designers to ensure that all lots of proposed subdivision plats meet requirements for onsite treatment prior to final plat.
PERFORMANCE	Regulatory Authority	<ul style="list-style-type: none"> Establish system failure criteria to protect public health, e.g., wastewater backups in building, wastewater ponding on ground surface, insufficient separation from ground water or wells. Establish minimum maintenance requirements for approved systems. Establish performance criteria necessary to protect public health and water resources for each defined receiving environment in Regulatory Authority's jurisdiction.
	Owner/User	<ul style="list-style-type: none"> Operate and regularly maintain system in proper working order. Operate system to comply with performance criteria stipulated in operating permit.
TRAINING AND CERTIFICATION/LICENSING	Issuing Board/ ¹ Regulatory Authority	<ul style="list-style-type: none"> Develop and administer a training, testing, and certification/licensing program for site evaluators, designers, contractors, operators, pumpers/haulers, and inspectors. Maintain a current certified/licensed Service Provider listing.
	Service Provider	<ul style="list-style-type: none"> Obtain appropriate certification(s)/license(s) and continuing education as required. Obtain training from the manufacturer or vendor regarding appropriate use, installation requirements, and O&M procedures of any proprietary equipment to be installed. Comply with applicable federal, state, tribal, and local requirements.
	Owner/User	<ul style="list-style-type: none"> When using third party services, contract with only the appropriate certified/licensed Service Providers.
SITE EVALUATION	Regulatory Authority	<ul style="list-style-type: none"> Codify prescriptive requirements for site evaluation procedures. Codify criteria for treatment site characteristics suitable for permitted design that will prevent unacceptable impacts on ground and surface water resources. Establish defining characteristics for each receiving environment in the Regulatory Authority's jurisdiction.
	Site Evaluator	<ul style="list-style-type: none"> Obtain certification/license to practice. Describe site and soil characteristics, determine suitability of site with respect to code requirements, and estimate site hydraulic and treatment capacity. Comply with applicable federal, state, tribal, and local requirements in the evaluation of sites for wastewater treatment and dispersal.
	Owner	<ul style="list-style-type: none"> Hire a certified/licensed site evaluator to perform site evaluation.

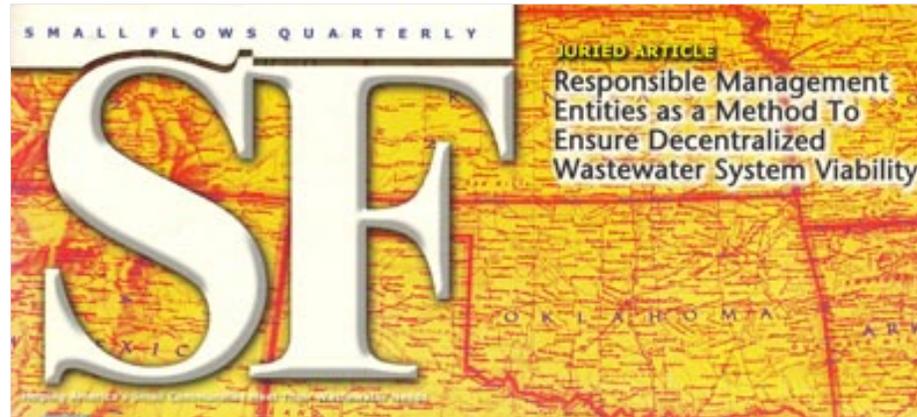
* Activities in bold are activities added to program elements from the preceding Management Model.

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- O&M
- Residuals Management
- Inspections/Monitoring
- Corrective Actions
- Record-Keeping/Reporting
- Financing

Managed Infrastructure – Making Onsite Permanent

- Responsible Management Entity
- County Government
- Private Utility-State Utility Commission
- Trained and Certified Operators



What is an RME?

Legal entity that has the **technical, managerial, and financial capacity** to ensure **viable long-term, cost-effective, centralized management, operation and maintenance** of decentralized wastewater systems in accordance with **appropriate regulations** and generally accepted accounting principles.

(*Small Flows* , Spring 2002 – Yeager & English

Definition of Success

RME had attained sufficient Technical, Managerial, Financial and Regulatory (TFMR) capacity to insure long-term viability

Challenges

- Population expected to increase
- Environmental pressures
 - Potable water supplies
 - Water quality
 - Stream flow
- Sustainable Solutions Require:
 - Technical capacity
 - Managerial and personnel capacity
 - Financial and managerial capacity
 - Effective rules and regulations

A Model Management Program

- Services might included:
 - Design tools for new systems and repairs
 - Construction management/inspection services
 - System maintenance & surveillance
 - Environmental monitoring
 - Administrative activities
 - Financing for individual systems

Model Operation & Maintenance

- Measure sludge and scum layers
- Check and clean filters
- Examine drainfield for signs of surfacing effluent
- Manually adjust floats and alarms for proper operation
- Measure system pressures
- Measure pump system flowrates



Valve adjustment



Pressure Check



Effluent Sampling

Administrative Activities

- Include:

- Updating of rules & regulations

- Staffing and personnel management

- Staff training

- Succession planning

- Budgeting and financing

- Customer relations & education

- O and M Scheduling

- Reporting

- Contracting outside services

- Tank pumping

Financial Commonalities

- Long-term financial plan exists
- Critical mass has been attained or defined
 - Covers paid management and overhead
 - 750-1000 accounts is common
- Alternative services provided
 - Water/Electric/Other
 - Design & Construction
- Appropriate monthly fee (\$ 25 to \$ 35+)
- Independent financial oversight



Governance Commonalities

- Political will must exist
 - Enabling legislation in place to allow formation of RME
 - Sufficient public acceptance (whether general or within specific segment)
- Outside “normal” health department control
- Board focuses on big picture & does not micro-manage

Technical Commonalities

- Least significant issue – the technologies exist
- Use the “Southwest Airlines approach”
 - Minimizing number of technologies minimizes parts inventory
 - Select the technology that can meet treatment objectives at lowest cost
- Many good systems on the market
- No single approach– performance and reliability are the keys

Managerial Commonalities

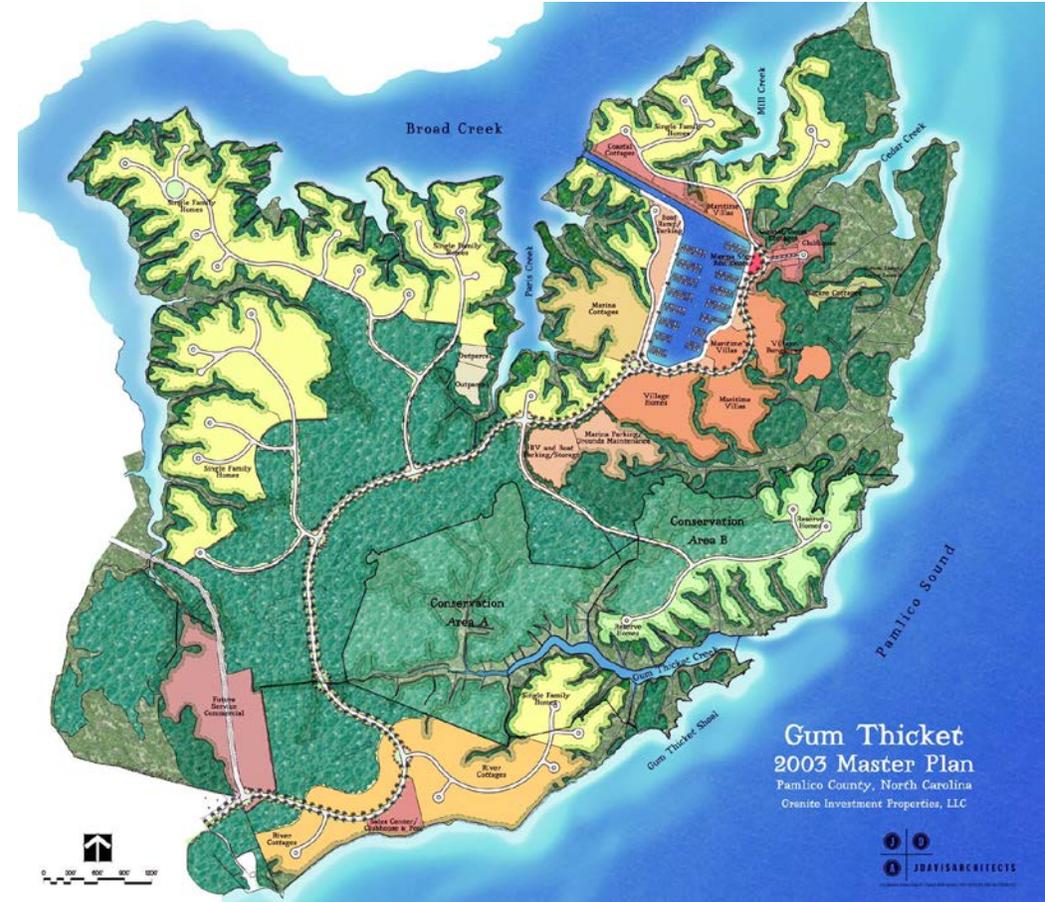
- Excellent organization management
 - Paid manager
 - Critical business aspects are addressed
 - Many components can be subcontracted
 - Business plan is established
- Effective “hammer” exists for collecting late payments
- Dedicated individual or core who sees the process through

Political Will Must Be in Place

- Majority of those paying the bill believe in it or accept its need
- Laws and Rules for formation and management of RME are essential:
 - Level playing field is essential, appropriate regulations must be developed and enforced
 - No best way; management exists in variety of models
 - Potential need to develop new laws, suitable legislation may be available
- Whether private or public, RME staff must work closely with local and state officials

Some Managed Decentralized Systems

Entity	Model	Accounts	Services	\$/mo
Panorama	3	1100	W	18.00
Stinson	3	750	W	35.00
TnOnsite	5	20000	D/I/Op	40
Bay River	5	8000	SW	60



Evening at Bay River



What to Expect: Capabilities and Competencies

- Technology (Science and Engineering)
 - Reliable
 - Robust
- Personnel
 - Trained and certified
- Management Entity
 - Financial capacity to manage all assets
 - Enforcement strategies

Conclusions

- All Levels management approaches can work appropriately
- Public, private, and partnership structures work
- Multiple management levels within one organization work
- Multiple services increase cost-effectiveness
- Cluster systems require Level 4 or 5