

Onsite Wastewater Treatment System Management

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- Introduction
- Current Regulatory Environment
 - Regulations
 - Design Standards
 - Types of Systems
- Concepts of OWTS Management
 - EPA's voluntary models
- Examples
 - Local OWTS management programs (Town, County, Watershed)

What are Decentralized Wastewater Systems?

A.K.A. . . .

Septic Systems,
 Onsite Systems,
 Individual Systems,
 Cluster Systems,
 Package Plants,
 Large Capacity Septic
 Systems



OWTS Background A Significant Issue Nationally

- 25% of homes use onsite treatment (33% of new construction)
- >50% more than 30 years old
- 50% in suburban areas
- Over 50% of OWTS are over 30 years old.
- 10-20% fail each year
- 2nd highest threat to groundwater

Current Shortcomings in New York

- There is no mandatory inspection requirement
- There is no mandatory inspection criteria statewide
- Few O&M or management programs, only localized programs
- Watershed/regional impacts often ignored
- Poor public outreach and education
- Little coordination with planning, zoning, water resource, and other agencies and stakeholders

Current Rules and Regulations

Current Regulatory Background

- Public Health Law (PHL) 201 gives authority to the NYSDOH to supervise and regulate sanitary aspects of sewage disposal.
- Part 75 of Title 10 (NYCRR) Chapter II provides Standards for Individual Water Supply and Individual Sewage Treatment Systems.
- PHL Section 132.1 establishes and outlines the responsibility of the Canandaigua Lake Watershed Commission and its duly authorized representatives.

Design Standards

- Appendix 75-A - Wastewater Treatment Standards - Individual Household Systems (Reference to Part 75 mentioned previously), December 1, 1990
- Appendix 5-B - Individual Water Supply, November 23, 2005
- Individual Residential Wastewater Treatment Systems Design Handbook - 1996, NYSDOH.
- Design Standards for Wastewater Treatment Works - 1988, NYSDEC

"New" systems

"What do I do when I build a new house?"
 Standards require the following:

- Site evaluation
 - Soil analysis (percolation tests, deep test holes)
 - Determination of slope of the site
 - Determination of distances to groundwater, surface water and other boundary conditions.
- Design of proposed system by a licensed professional.
 - Based on site evaluation and number of bedrooms.
- A site plan and details, reflecting information from site evaluation.
- A site can have either a conventional, alternative or specific waiver system.

Conventional Systems

- These systems are described in Appendix 75-A, or the Design Handbook (Red Book).
- Conventional systems are installed in in situ soils with acceptable percolation rates having no issues with boundary conditions such as high groundwater, proximity to water bodies, etc. Absorption field length is based on tables in either Appendix 75-A or the Design Handbook.
- A "typical" system consists of a septic tank, distribution box and absorption field. Aerobic treatment units can be utilized instead of a septic tank and gravelless chambers instead of perforated pipe with gravel.
- Typically Local code enforcement officer or duly appointed representative approves the system.



Alternative Systems

- Alternative systems are installed where soil conditions or boundary conditions can not be met. (Soil percolation rates in excess of 60 minutes per inch, high groundwater or impermeable layer close to the surface.)
- NYSDOH Approval required.
- May require jointly review with third party (Watershed Inspector, CEO).
- Typical systems are raised beds and sand filters.



Specific Waivers

- Part 75.6 (b) Specific Waiver. The State Commissioner of Health, his designated representative or the designated full-time city, county or part-county health department official, may on written application grant a specific waiver from a provision of this Part, where such waiver is consistent with the general purpose and intent of this part. The applicant receiving such waiver must be advised in writing if the design or conditions approved do not meet State Standards and the potential consequences of such deviations. Systems with a surface discharge are prohibited and are not eligible for a waiver.

Specific Waivers (cont'd.)

- Typically these are "engineered" systems which are a modification of an alternative system. Waivers are granted for distance from surface water, steepness of slope, closeness to property lines, etc.
- NYSDOH Approval required.
- Specific waiver process is a balance between the needs of the property owner and the requirements of Appendix 75-A. Specific waiver systems must typically provide the best treatment practical and while coming as close to meeting the Standards as practical.

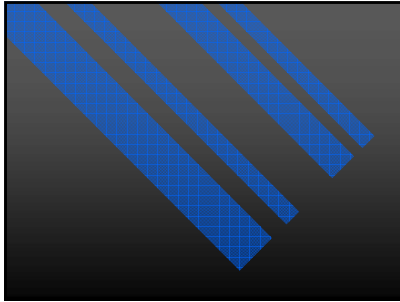
Specific Waiver Issues

- Along the lakeshore waivers are often required due to lot size, shape or topography. Type of soil, groundwater elevation, and adjacent watercourses are assessed.
- Odd shape or size lots may require a number of specific waivers to obtain the best system from a design standpoint. Trying to get systems as far from the lake as possible may result in it being close to property lines or house foundation, resulting in multiple waivers.

Specific Waiver Issues (cont'd)

- Review of specific waivers requires use of engineering judgement. What is the lot size, slope, type of soil, closeness to lake or other physical constraints? Has the applicant proposed the best system practicable to mitigate environmental health concerns? What issues are there with neighboring properties? Does the engineers report and proposed system adequately address issues?
- The design professional or a duly appointed representative must provide oversight during construction. While difficult to enforce, conditions of approval provide a framework for system evaluation and an impetus for system improvements if it is found they are not being followed.





Repair or replacement systems

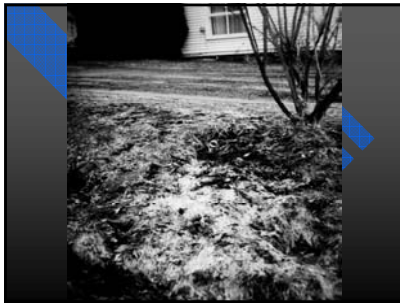
- NYSDOH Approval is not required.
- The Local Code Enforcement, local health department, or duly appointed representative does review and approve these systems.
- NYSDOH will provide technical assistance to Town CEO's as needed in the review of these systems.
- The Town CEO, local health department, or duly appointed representative determine if a system is considered new construction or repair/replacement.



Concepts of OWTS Management



Why Regulate OWTS??

- Protection of public health
- Protection of property values
- Can be a contributor of non-point source of pollution
- Community quality-of-life

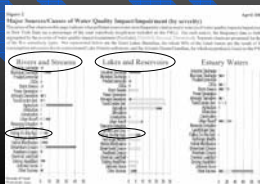
Why Regulate OWTS?? Consideration of sensitive areas, resources

- Protection of water resources
 - Groundwater (pathogens, nitrate)
 - Surface waters (pathogens, nutrients)
 - Meet overall water quality standards
- Consider existing/planned system requirements and impacts
 - System densities, critical areas
 - Water resource sensitivities

OWTS pollutants of concern

- Pathogens- bacteria, viruses, parasites
- Nitrogen- eutrophication, drinking water contamination
- Phosphorous- eutrophication, depletion of DO in receiving waters
- Pharmaceuticals, medicines
- Personal care products



OWTS Management, What is Needed?

Improved Management, including:

- Improved owner awareness
- Licensed/certified practitioners
- Appropriate application of technology to the receiving environment
- Routine O&M
- Effective and affordable options for difficult sites
- Consideration of all options (decentralized and centralized)

The Traditional OWTS Management Focus

- Permitting: prescribed limits on acceptable sites, prescribed system designs
- Installation: oversight of construction and installers and/or licensing, registration
- O & M: homeowner booklets and brochures, tank pumping info
- Corrective actions: repair or replacement upon receipt of verified complaints



EPA's OWTS Management Guides

- Major pieces
 - Public awareness and education tools
 - Homeowners' Guide
 - Case studies of management programs
 - Database for inventories
 - Examples of funding
 - Model codes and ordinances
 - Septage management examples
 - http://cfmh.epa.gov/owts/epubs/septic.cfm?base_id=268



EPA Voluntary Management Guidelines for Decentralized Systems

- Voluntary
- Comprehensive programs
- As a minimum: inventory
- Increased certification/licensing
- Integrate management models
- Progressive series of five levels
 - As resource sensitivity and technical complexity increase, so does the management level

EPA Voluntary Management Guidelines

Five Suggested approaches to management:

- 1) Homeowner Awareness
- 2) Maintenance Contracts
- 3) Operating Permits
- 4) RME Operation and Maintenance
- 5) RME Ownership/Management

MANAGEMENT MODEL 1

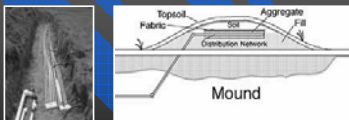
Homeowner Awareness of Maintenance Needs

- Covers conventional septic systems
- Low environmental sensitivity
 - i.e., adequate space, separation distance, etc.
- Local agency is aware of system locations
- Periodic operation and maintenance reminders



MANAGEMENT MODEL 2

Maintenance Contracts



- Certain systems given more attention
- Allows for more complex options
 - e.g., mounds, pressure dosed systems
- Maintenance contracts with trained service providers

MANAGEMENT MODEL 3

Operating Permits

- Renewable operating permits
- Regular reporting and monitoring
- Sensitive sites
 - lakes, aquifers
- Dependent on maintaining performance requirements
- Minimum for clusters, aerobic units, large capacity systems



MANAGEMENT MODEL 4

Responsible Management Entity Operation and Maintenance

- Management entity responsible for operation and maintenance
 - Systems still owned by homeowners
- Ensures consistent performance
- RME performs routine inspections & maintenance
- Very sensitive areas - recreational uses, wellhead protection

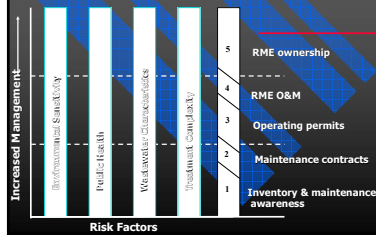


MANAGEMENT MODEL 5 Responsible Management Entity Ownership and Management

- Same as Model 4, except RME is owner
- Professional management of all activities
 - Analogous to centralized collection and treatment
- Allows area-wide watershed planning and management
- Very sensitive environments
- Reduces oversight by regulatory agency



Application of the Model Programs



Examples of Local OWTS Management Programs

Examples of Local OWTS Management Models

- Town of Huron Septic Law
- Cayuga County
- Ontario County's Uniform Procedures Program
- Skaneateles Lake Watershed
- Keuka Lake Watershed Improvement Cooperative
- Conesus Lake Watershed
- Canandaigua Lake Watershed Commission

Town of Huron, Wayne County



- Adopted as local law #1 of 2002 titled "Town of Huron Septic Law"
- Governs new construction, replacement/modification/upgrade of systems, and the inspection of existing systems
- Septic Law is a permit based system that is administered by the Town's Building Inspector
- Law can be found at <http://www.nyenvlaw.com/Huron/septic.htm>

New construction, replacement/modification/upgrade of systems

- As with all new construction, systems are to be designed by a NYS licensed professional (PE, RA)
- Allows for the distinction between a partial replacement of systems (house sewer, tank, distribution box) and the complete replacement of systems (compliance with NYSDOH Appendix 75A)

Inspection of Existing Systems

- Required inspections**
 - Increase in living area or increase in effluent volume
 - Change of property use (ex. residential to commercial)
 - Transfer of ownership
 - Modification or construction resulting in at least 50% increase in interior floor space of principal structure
- Periodic inspections**
 - Commercial properties inspected at the time of any fire inspection as required by the Town of Huron Building Law (at least every two years)
 - Residential non commercial properties inspected every five years

Inspection of existing systems cont.

- All inspections are performed to a standard**
 - Tank uncovered and pumped (for the inspection of structural integrity)
 - Dye test is performed to see that all fixtures are tied into the system
- Failed systems have two years to be brought into compliance**
 - Systems are to be brought into compliance, to the extent practical, with NYSDOH standards (Appendix 75A)

Cayuga County



- Cayuga County Sanitary Code (OWTS program) was enacted in 1994 primarily out of concern for wastewater inputs into Little Sodus Bay and Owasco Lake
- Governs new construction, replacement/modification/upgrade of systems, and the inspection of existing systems
- OWTS program is implemented county-wide, sets additional standards for sensitive areas
- Cayuga County DOH has contracted with County SWCD (as an affordable alternative to private professionals) for soil investigations and the designing of new/replacement systems.
- Mandatory inspections of all OWTS is the cornerstone of the County's program.

New construction

- For new construction, homeowners are required to utilize NYS licensed professional (PE, RA)
- Homeowners may use County SWCD (through an agreement with County DOH) for siting, design and oversight with installation
- All systems must be in compliance with NYSDOH Appendix 75A or receive a waiver from County DOH

Inspection of existing systems

- Cayuga County DOH set up inspection program
 - DOH created the inspection criteria
 - DOH initiated inspector training (SWCD, CEO's, contractors, etc.)
 - Inspector training 3 day course, 1 day annual renewal training required
 - Modification or construction resulting in at least 50% increase in interior floor space of principal structure

Inspection of existing systems cont.

- Mandatory inspections
 - OWTS inspections required every two years for shoreline properties along Little Sodus Bay, Owasco Lake and other sensitive areas.
 - The rest of the county is inspected on a town by town basis, towns can contract with SWCD, hire a private party, or have the property owner bear the cost.
 - DOH has found that OWTS repairs have increased substantially due to homeowners knowing that these systems are going to be inspected on a regular basis.

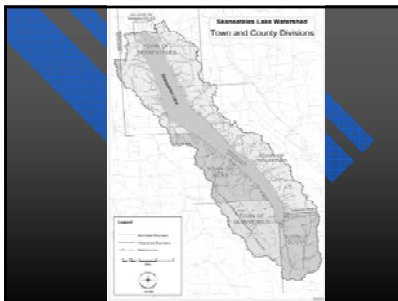


Ontario County Uniform Procedures Program

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|--|--|
| <p>Towns with Inspections under Local Law</p> <ul style="list-style-type: none"> ■ Canadice ■ Gorham ■ Hopewell ■ Phelps ■ Richmond ■ South Bristol ■ West Bloomfield | <p>Towns that use UPP or OTN registered inspector for deed transfer</p> <ul style="list-style-type: none"> ■ Bristol ■ Canandaigua ■ Farmington ■ Manchester ■ Seneca |
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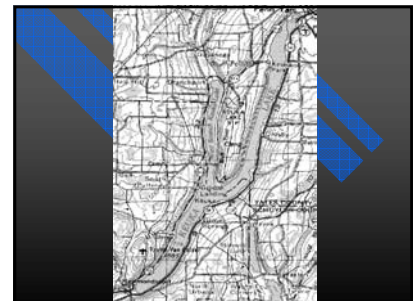
Ontario County Uniform Procedures Program

- SWCD, Planning Dept & Water Resources Council developed program
- Contracts with 10 Towns for inspections, soil investigations
- 2006: 35 soil investigations for new construction & repair, 87 septic system inspections



Skaneateles Lake Watershed

- Unfiltered drinking water source for Village of Skaneateles, City of Syracuse
- Revised Rules & Regulations enacted 2005
- 2 Full time inspectors
- Regulated activities: new construction, repair/replacement of existing systems.
- OWTS Management Program includes on-going dye testing program

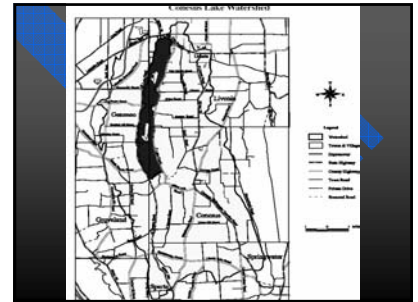


Keuka Watershed Improvement Cooperative

- Formed in 1993 by eight municipalities through an intermunicipal agreement
- Purpose-” to protect and improve purity of waters”
- Uniform septic standards and enforcement
- Provided authority to address additional threats
- Folded in responsibility and authority of NYSDOH Watershed Rules and Regulations

Keuka Watershed Improvement Cooperative

- Governed by a Board of Directors (municipal officials) who meet bi-monthly, they set policy and program direction
- Rolling “sunset three year agreement”
- Conflict resolution, review and reconfirmation
- Program Staff: Watershed Manager, Watershed Inspectors, Office assistant



Conesus Lake Watershed Inspection Program

- Drinking water supply for Avon, Geneseo, Groveland, York
- Inspection Program began 1998, full time inspector
- 1993: draft of new regulations begun, submitted 1998 to NYS DOH for review & approval

Canandaigua Lake Watershed Inspection Program



Adoption of Canandaigua Lake Watershed Rules & Regulations 1954

- Approval by NYSDOH Bureau of Public Water Supply
- Adopted by NYS Legislature
 - Chapter 879 of Laws of 1953
 - Public Health Law
 - » Section 132.1, Part 132 Chapter III



1.4.2 Watershed Inspection Program

According to **Public Health Law Rules and Regulations**, responsibility for watershed inspection and compliance with the rules and regulations rests with the “person, officer, board or commission having the management of the public water supplies, or the person or persons charged with the maintenance or supervision of the water supply or a duly appointed representative.”



The **Canandaigua Lake Watershed Commission** is the body having the responsibility for the Canandaigua Lake Watershed Rules and Regulations. The Commission has designated the **Watershed Inspector** as the person charged with the maintenance and supervision of water supply inspections.

Canandaigua Lake Watershed Commission

- **Water Purveyors:**
 - City of Canandaigua
 - Village of Newark
 - Village of Palmyra
 - Village of Rushville
 - Town of Gorham



These municipalities are charged under NYS Public Health Law with responsibility for maintaining Canandaigua Lake as a source of high quality drinking water.

Inspector's Duties

- **Inspect for Sources of Pollution**
 - Onsite wastewater systems
 - Hazardous wastes
 - » Spills
 - » Illegal Dumps
 - Investigate Complaints
 - Assist in Corrections



Inspector's Duties Continued



- Deep Hole & Percolation Tests
- Review building plans
 - Engineers/Architects
- Coordinate water quality monitoring
- Work with consultants and treatment plants
- Education
- Maintenance of records

Obligations of Commission



- Comprehensive Watershed Inspection
- Report Annually to DOH, on form DOH-359
 - Total # Inspections
 - Total # Violations Served
 - Total # Violations Corrected
 - Total # Violations Not Corrected and Why

Questions?

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