

**May 16, 2008**

**PUBLIC HEALTH**  
ALWAYS WORKING FOR A SAFER AND  
**HEALTHIER WASHINGTON**

# Large On-site Sewage Systems

## Maryanne Guichard

# Our Discussion

- Wastewater concerns
- Septic tank system capabilities
- Who does what - Now
- Current large system activities

# Management of Wastewater is a Major Challenge in the Puget Sound Basin

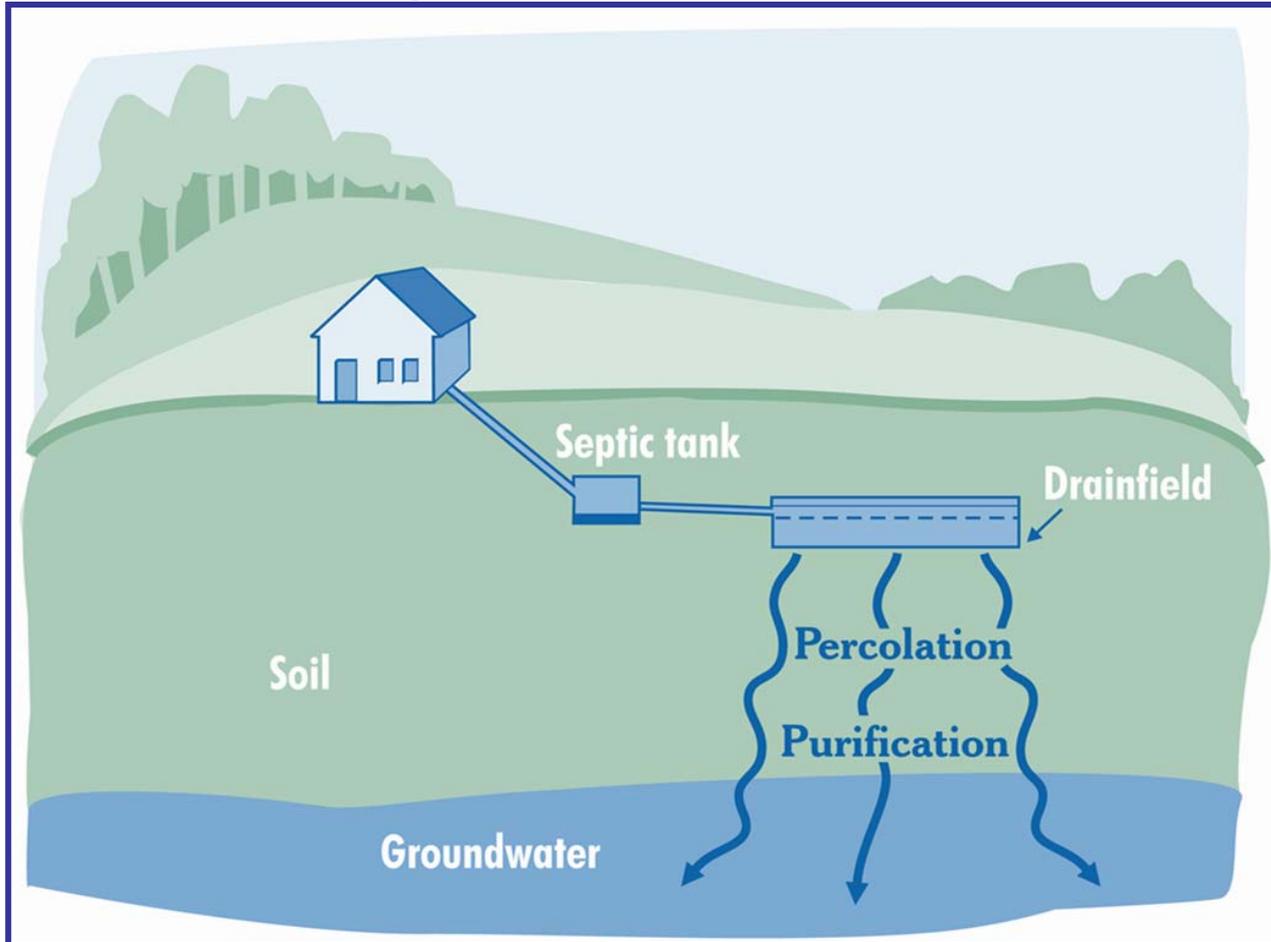
Issue	Sewers (discharge to surface water)	Septic Systems (discharge into soils)
<b>Population Served</b> (projected increase of 35% by 2025)	<b>2.85 Million (71%)</b>	<b>1.15 Million (29%)</b>
<b>Total Volume</b>	<b>400 Million GPD</b>	<b>175 Million GPD</b>
<b>Groundwater Recharge</b>	<b>Limited</b> (reclaimed water; upland spray)	<b>High</b> (but greater risk if failure)
<b>Nitrogen Reduction</b>	<b>10-40%<sup>1</sup></b> (much more with tertiary treatment)	<b>10-40% Basic System<sup>2</sup></b> (Much more with nitrogen removal)
<b>Operation and Maintenance</b>	<b>Daily</b>	<b>Limited</b> (Inspections required 1-3 years, but highly variable)
<b>Water Quality Impacts</b> <ul style="list-style-type: none"> <li>– Shellfish Acres Permanently Closed</li> <li>– Shellfish Area Closed/Outfall or Failure</li> <li>– Pipe breaks, Sewer Overflows, Failures</li> <li>– Public Swimming Beach Closures</li> </ul>	<p>≈28,000 (excluding urban bays)            Large areas (100s – 1,000s acres)            &gt;1.3 billion gallons/year<sup>3</sup>            57 Short-term (2005 – 2006)</p>	<p>&lt; 2,000 acres (where only source)            Small, localized areas (1-2 acres)            Variable depending on location            10 long-term (2005 – 2006)</p>
<b>SUMMARY</b>	<ul style="list-style-type: none"> <li>▪ Both meet or exceed secondary treatment standards</li> <li>▪ Both are capable of higher treatment</li> <li>▪ Both create water quality challenges</li> </ul>	

<sup>1</sup> LOTT: ≈5% of 400 million GPD

<sup>2</sup> *Onsite Wastewater Systems Manual*, EPA/625/R-00/008, Table 3-17, 02/2002

<sup>3</sup> 2002 Ecology CSO Focus Sheet

# Typical Septic Tank System



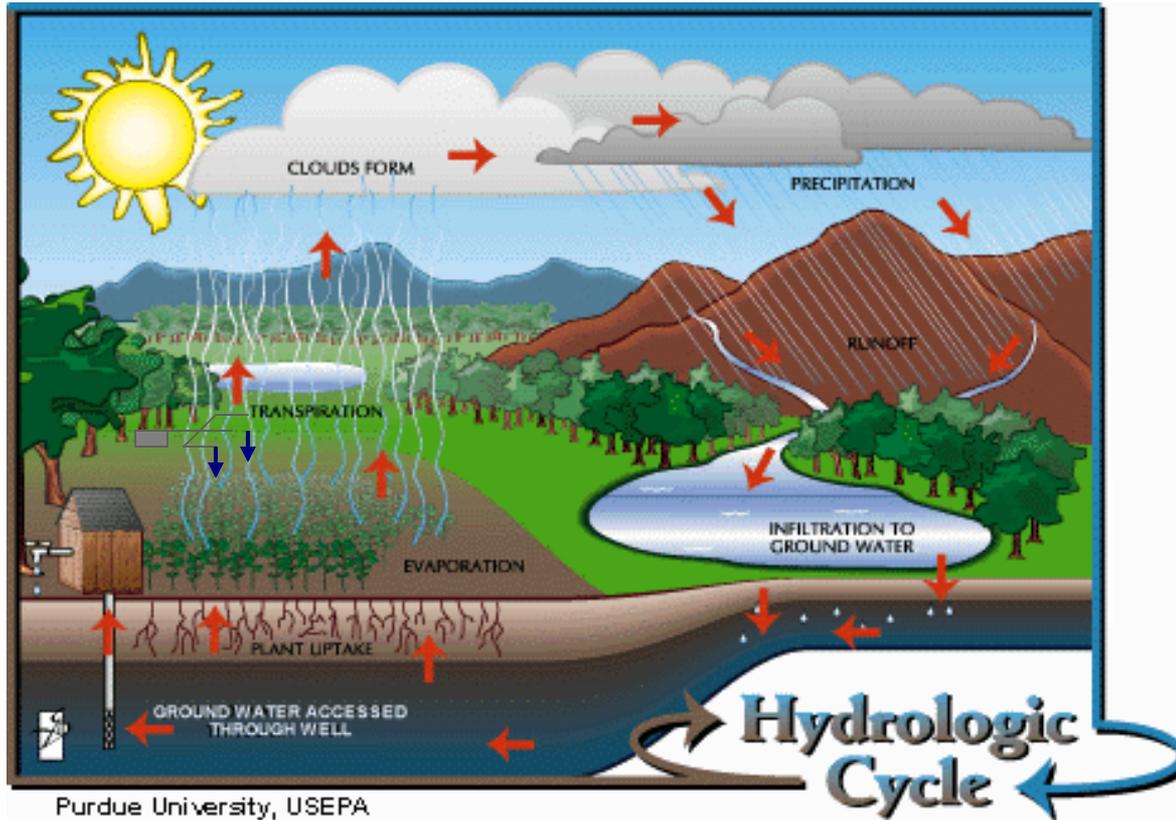
# What happens to wastewater in soil?

- Variety of physical, chemical, and biological treatment processes including:
  - Filtration
  - Adsorption
  - Predation
  - Ion-exchange
  - Aeration
  - Anaerobic zones
  - Inactivation
  - Disinfection
  - Biological
  - Physical/Chemical
  - Fixed film

## With proper soil conditions:

Parameter	Potential % Removal
BOD	>90
TSS	>90
Total N	10 – 20
Total P	85 – 95
Fecal Coliform	>99.99
Virus	>99.9
Heavy metals	>99
Organic chemicals	>99

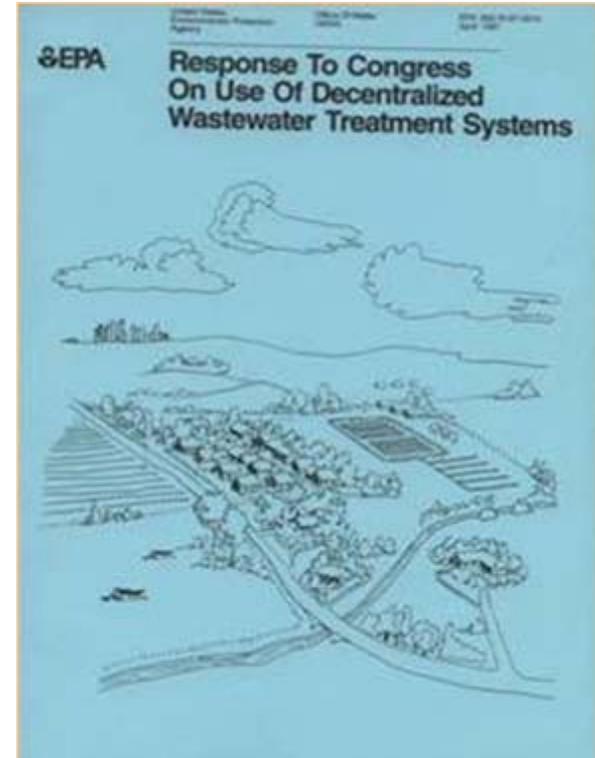
# OSS Fit Into Water Cycle



They recharge aquifers...

# USEPA's 1997 Report to Congress

*“Adequately managed decentralized wastewater treatment systems can be a cost-effective and long-term option for meeting public health and water quality goals, particularly for small, suburban and rural areas.”*



# Who Does What Now in Washington?

## LHJs

- $\leq 3,500$  gpd
- WAC 246-272A

## DOH

- 3,500 -14,500gpd
- No Mechanical treatment
- WAC 246-272B

## Ecology

- $\geq 14,500$  gpd
- Mechanical treatment  $\leq 3,500$  gpd
- WAC 173-240 & others

————— **LOSS** —————

# How many LOSS?

- 300 under current DOH operating permit (since 1984)
- About 500 known - not under DOH operating permit
  - Permitted by LHJ
  - Permitted by Ecology
  - Others
- 2,000 ± unknown



# 2007 Legislation – Chapter 70.118B RCW

- DOH responsible for:
  - Systems from 3,500 to 100,000 gpd
    - Discharge into the soil
    - Mechanical treatment
  - Developing LOSS rule



# LOSS Rule

- Must protect public health and the environment
- Comply with applicable sections of ground and surface water standards
- Must apply AKART
- A DOH rule, not SBOH rule



# LOSS Rule

- Owners of all LOSS to obtain operating permit by July 1, 2009
  - LOSS is to comply with standards
  - 1 year permit, renewable annually
  - To meet letter of law – need to find and issue about 2,500 operating permits
  - LOSS with Ecology permit will remain until permit expires

# LOSS Rule



- Requires **public notice** for LOSS with design flows > 14,500 gpd
  - Public must have opportunity to **comment**
  - DOH must include provisions for final notice & appeals
- Must assure that LOSS projects comply with GMA, local comprehensive plans or development regulations

# LOSS Rule

- To strengthen DOH enforcement capability:
  - Fines are authorized
  - Maximum penalties to be prescribed
  - Enforcement procedures and appeal process to be outlined



# LOSS Rule Timeline



<b>File CR-101</b>	<i>Public Participate</i>	<i>Public Participate</i>	<i>Public Participate</i>	<b>File CR-102</b>	<b>Hearing</b>	<b>Post Hearing</b>	<b>File CR-103</b>
	<i>Advisory Committee Work</i>	<i>Draft of WAC</i>	<i>Advisory Committee Work</i>	<i>Economic Analyses</i> <i>SEPA</i>	<i>WSR</i> <i>Schedule</i>	<i>Adopt</i>	<i>Forms</i>
		Panel Work- Shops  Road shows	Changes to Draft WAC	SBEIS Cost/Benefit  Least Burdensome	1 = min.	CES  Implement Plan	Adoption Notice
Jan. 14 <sup>th</sup> 2008	Start= Jan 2008	Aug-Sept 2008	End=October 2008	November 2008	Jan 2009	Jan-Feb 2009	Feb 2009  Effective 31 days later



# Questions?

