

# Septic Systems 101: Is Your Well Water Well Workshop

FOR THE

#GATORGOOD

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# Today's Outline

1. Describe how a conventional septic system works
2. Explain how nitrogen (N) is treated by conventional septic systems
3. Explain how to maintain a residential septic system

# How a septic system works

You just flush and it goes away, right?

# What is OSTDS? What is a septic system?

- Onsite sewage treatment and disposal systems (OSTDS):
  - treat and dispose of relatively small volumes of wastewater,
  - usually from residential sites but may also be at commercial/industrial sites
- OSTDS include numerous technological varieties, the most basic of which is the conventional septic system
- A conventional septic system is simply an underground tank that collects waste from a home, some pipes to disperse the waste effluent, and soil for the effluent to percolate through
- Other, more advanced technologies are available, and we'll discuss those in future sessions

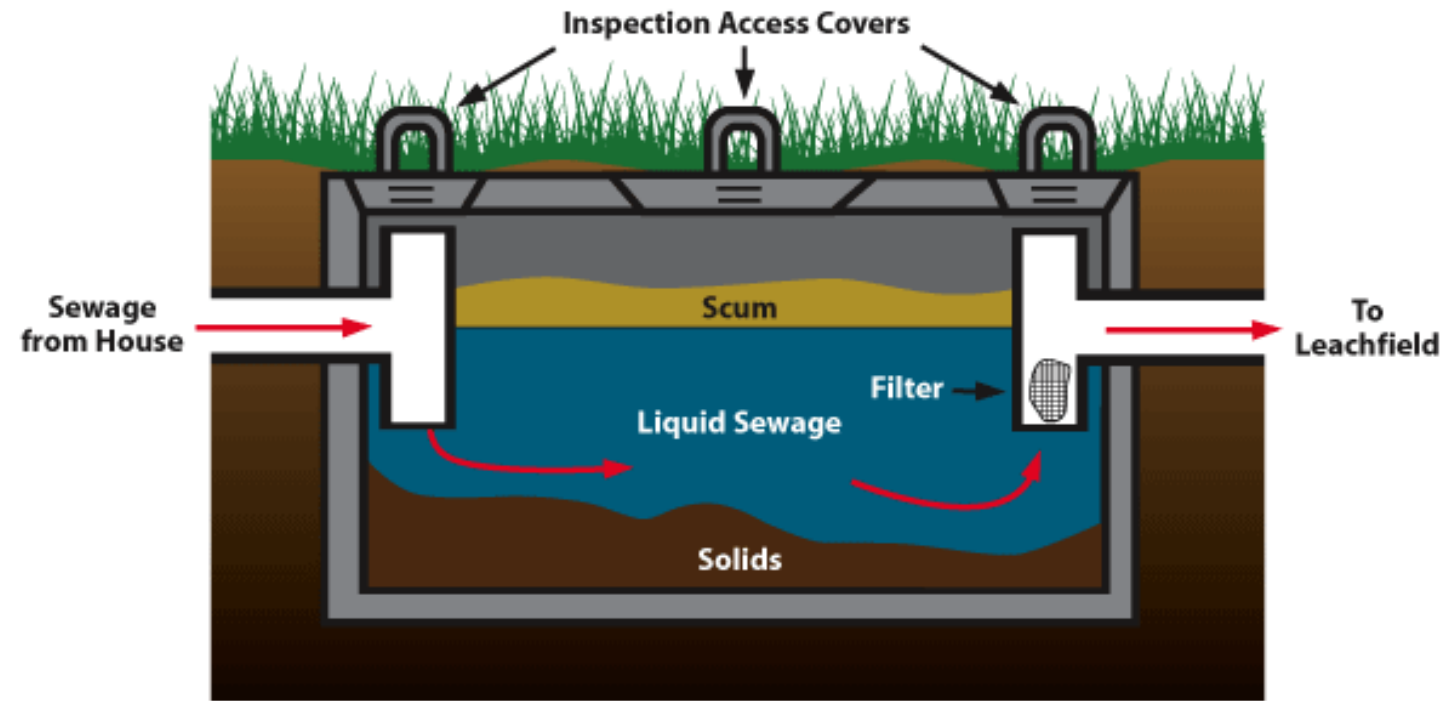


## The Conventional Septic System

1. the septic tank
2. the leach field (drainfield, soil treatment unit, STU)



# The Septic Tank



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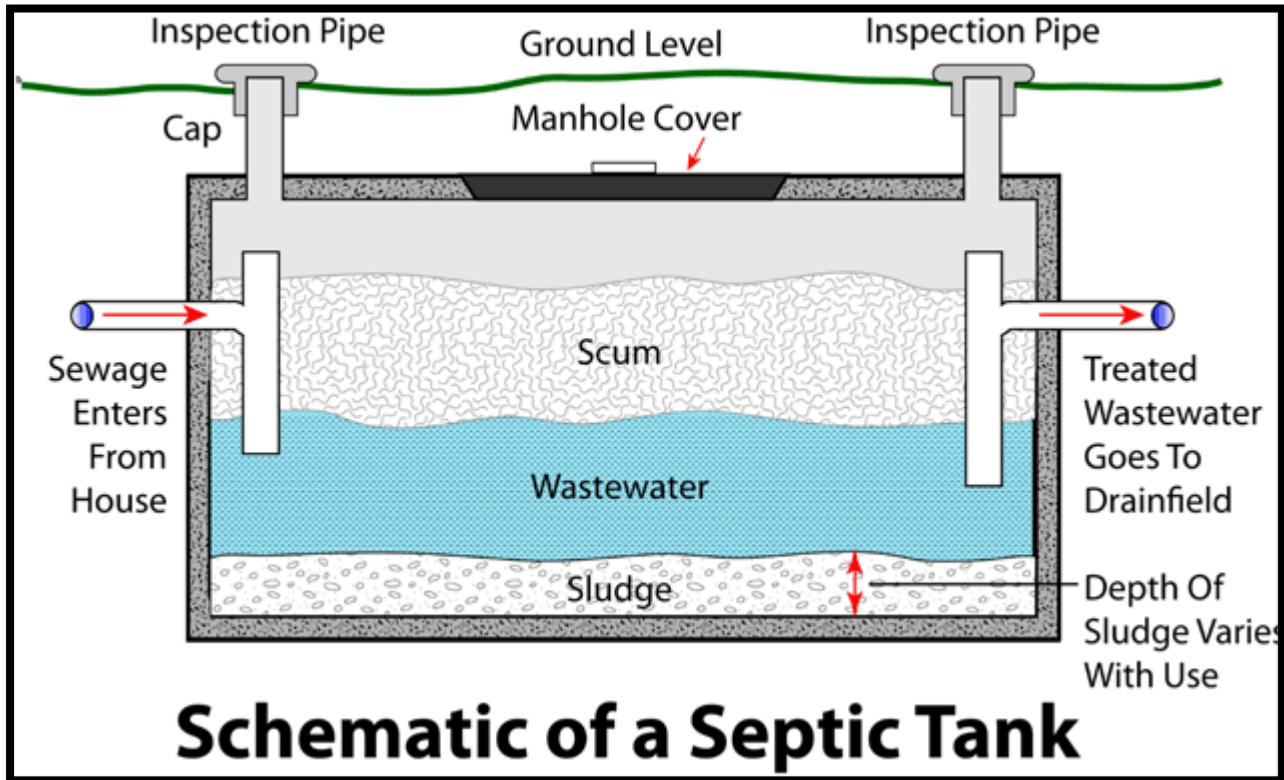
Designed for the size and expected water usage of the home

Solid waste (aka Sludge) settles to the bottom

Oil and grease (aka Scum) rise to the top

Liquid (aka Effluent) moves on to the leachfield

# The Septic Tank

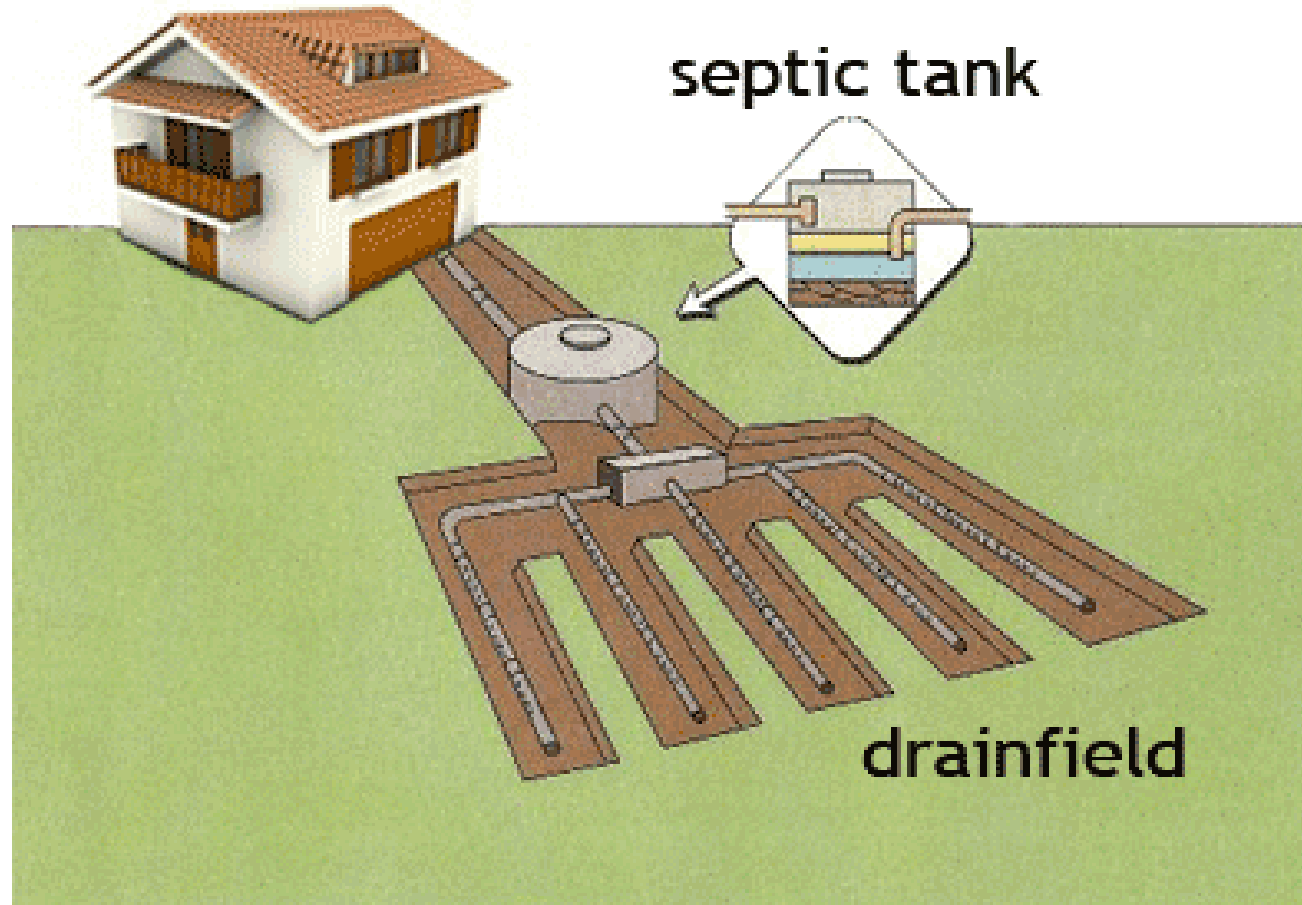


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## Treatment begins here

1. Solids settle out
2. Anaerobic bacteria break down degradable wastes
  - ❑ 40% volume reduction
  - ❑ resulting gases escape through plumbing vents

# The Drainfield



## Most treatment takes place here

1. Filtering, removal, and transformation of contaminants as effluent moves through the soil
2. Series of trenches or a single bed with perforated pipes
3. Need unsaturated soil
  - ❑ 24 inches from bottom of drainfield to wet season water table





cm.bbs.net

# Septic Systems Maintenance

Inspect it and protect it!



# Why do septic systems fail?

Most fail because of:

1. Poor design and placement

- Inappropriate soils – need them to drain well, but not too quickly
- High ground water tables
- Excessive slopes

2. No routine maintenance done



# How do you know if a septic system has failed?

## **If any of these occur:**

- Wastewater backs up into household drains
- Drainfield has bright green spongy grass, even during dry weather – saturated soils
- Water pools or there is muddy soil around your septic system or in your basement.
- There is a foul odor around the septic tank and drainfield

**Call a septic professional!**

# How should a septic system be maintained?

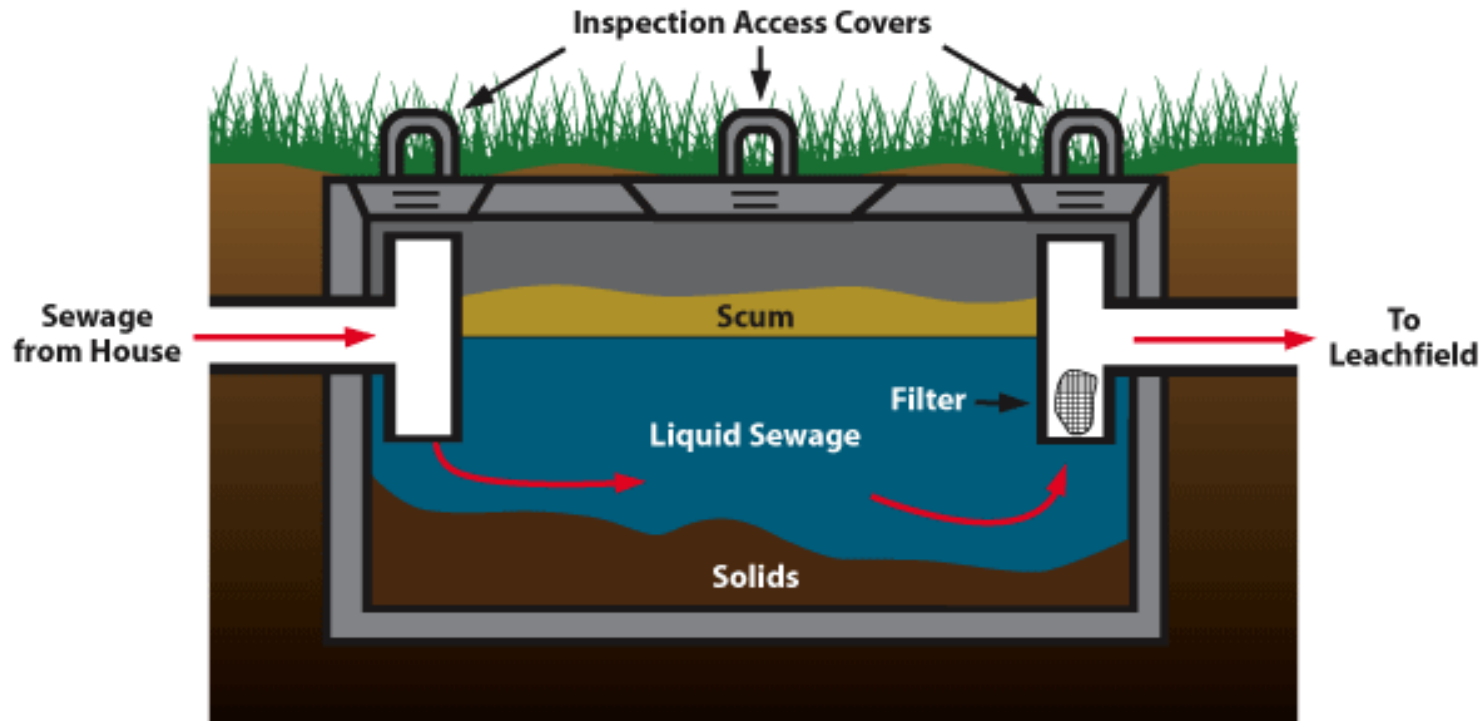
Septic system maintenance is largely common sense, relatively simple and inexpensive (as compared to replacing a failed system)

It boils down to 4 key components:

- Inspect and pump when needed
- Properly dispose of waste
- Maintain your drain field correctly
- Use water efficiently



# How often should you have your septic system pumped?



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**Sludge and scum layer should not fill more than 30% of tank**

Pump when:

- Bottom of the scum layer is within 6 inches of bottom of outlet, *or*
- Top of solids (sludge) is within 12 inches of outlet

Time between pumping depends on **type of system, household and tank size** and **what you flush** down the toilet and drains

General rule of thumb:  
every 3-5 years



# Recommended number of years between septic tank pump-outs

Tank size (gallons)	Household size (number of people)									
	1	2	3	4	5	6	7	8	9	10
500	5.8	2.6	1.5	1.0	0.7	0.4	0.3	0.2	0.1	–
750	9.1	4.2	2.6	1.8	1.3	1.0	0.7	0.6	0.4	0.3
1,000	12.4	5.9	3.7	2.6	2.0	1.5	1.2	1.0	0.8	0.7
1,250		7.5	4.8	3.4	2.6	2.0	1.7	1.4	1.2	1.0
1,500		9.1	5.9	4.2	3.3	2.6	2.1	1.8	1.5	1.3
1,750			6.9	5.0	3.9	3.1	2.6	2.2	1.9	1.6
2,000			8.0	5.9	4.5	3.7	3.1	2.6	2.2	2.0
2,250				6.7	5.2	4.2	3.5	3.0	2.6	2.3
2,500					5.9	4.8	4.0	4.0	3.0	2.6

If a garbage disposal is used on a regular basis, tank has to be pumped more often

# Properly dispose of waste: Don't overload the comode

- Do not flush trash
  - Paper towels, cigarette butts, cleaning tissues, dental floss, etc.
  - Treated toilet paper (lotion) forms a layer of scum
  - Are wet wipes “flushable”?

**NO!**

- Limit use of garbage disposal
  - Adds solids to the septic system
  - May need to pump 1-2 yrs sooner
  - **Compost instead**



# Think at the Sink

Don't pour excessive oils and fats down the drain

- Kitchen fat
- Heavy use of bath and body oils
- Moisturizers

Avoid excessive use of cleaning products and detergents

- Can affect the microbes in the system
- Prescription drugs and antibiotics shouldn't be flushed down the toilet





# Maintain your drainfield

## 1. Parking

To work well, septic system should be surrounded by non-compacted soil  
Don't drive vehicles or heavy equipment over system

## 2. Placing

- Keep roof drains/rainwater drainage systems away from drainfield
- Too much water slows treatment process



# Maintain your drain field

## 3. Planting

- Shallow-rooted herbaceous plants are best; plant over the drain field to stabilize soil and absorb liquid and nutrients
- Avoid planting trees or shrubs with deep roots that could clog the system







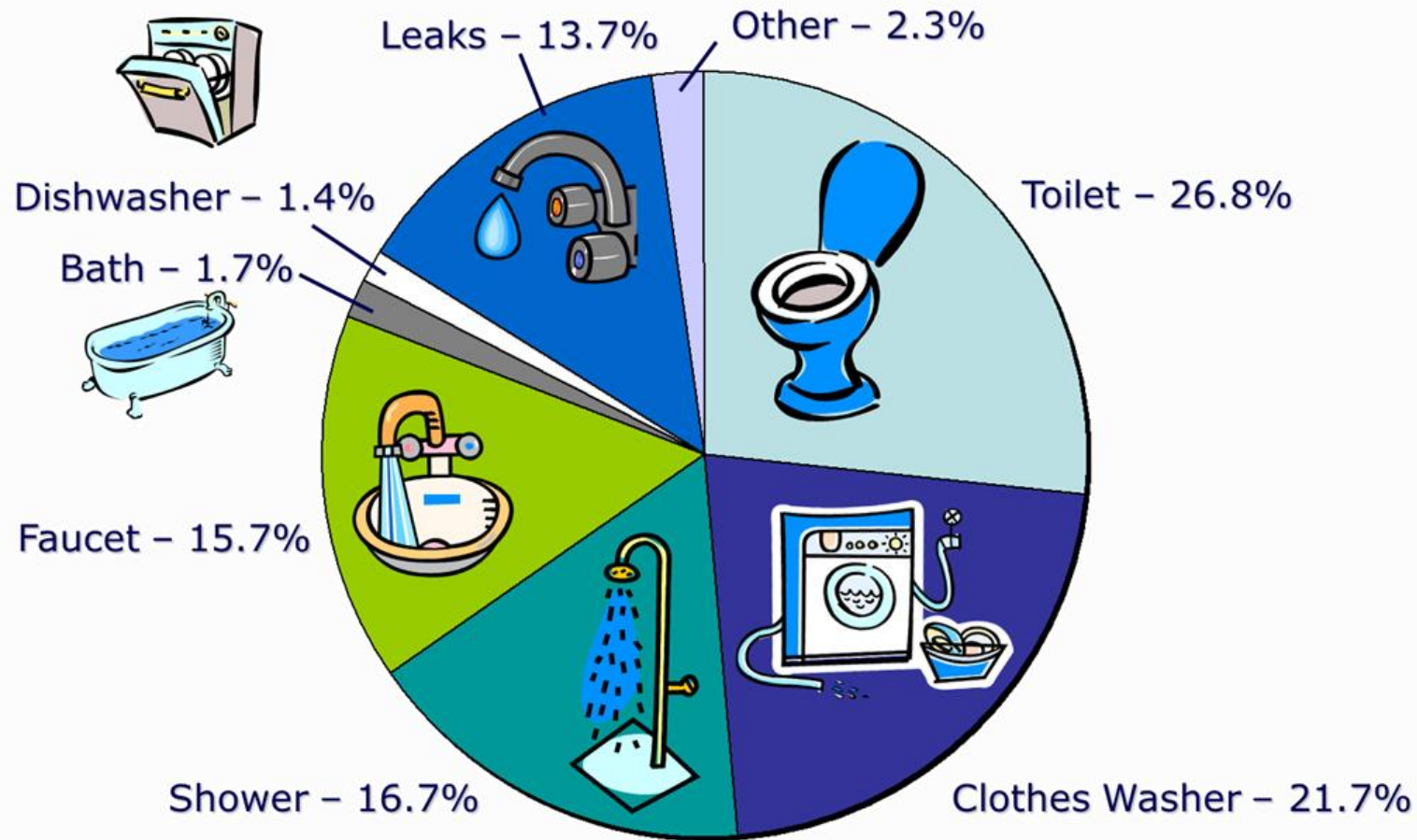
# Use Water Efficiently

**All** household water sent down the pipes goes to the septic system.

- Less water used, less water enters the septic system.
- Efficient water use improves the operation of a septic system and reduces the risk of failure.



# Residential Indoor Uses of Water



Source: Awwa Research Foundation (1999)

## Reduce the amount of water into your system

- Each person uses about 80-100 gallons/day
- A family of 4 about 400 gallons/day

# Questions?

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