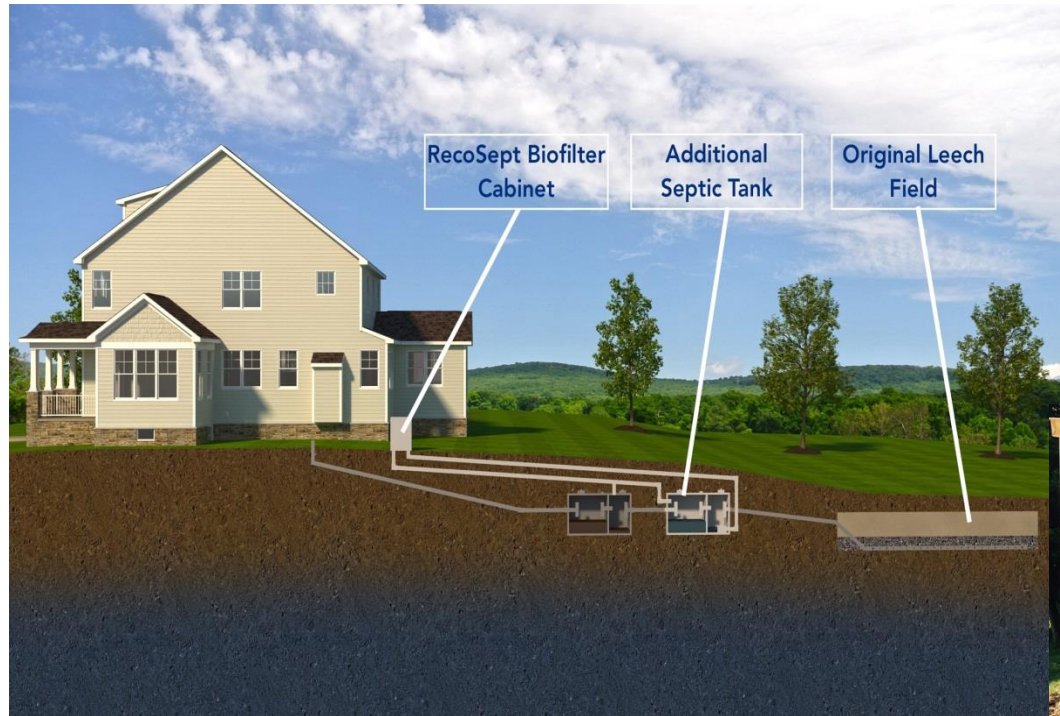


# BAT SEPTIC SYSTEMS AS A NUTRIENT TRADING TOOL

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# RecoSept™ System (Patented)



**Std. OSDS Effluent      RecoSept™ Effluent**



**BioFilter Cabinet™**

# Why BAT Systems as a Nutrient Trading Tool?

- ❑ MDE-approved BAT systems as replacements for existing OSDS would be a credible and reliable source of N credits
  - Rigorous testing protocol
  - Long-term O&M contract requirements
  
- ❑ MDE-approved BAT systems would provide one of the lowest cost trading tools available

# TN Removal Through the Stages of an OSDS (Septic) System

	Annual lbs. TN				Annual lbs. TN at				Annual Lbs. TN				
	at Beginning		%		at Beg. Edge		%		at End of		%	Annual lbs. TN at	Annual lbs. TN
	of OSDS		Removed		of Drain Field		Removed		Drain Field		Removed	Edge of Stream	Removed
Std. OSDS	28.6	(a)	0%		28.6	20%	(c)		22.9	10%-50%		11.4 - 20.6	8 - 17.2
Avg. MDE-Apprvd. BAT System	28.6	(a)	70%	(b)	8.6	20%	(c)		6.9	10%-50%		3.4 - 6.2	22.4 - 25.2

**Conclusion:** *An MDE approved BAT system removes 8 - 14.4 lbs. more TN per year than a standard OSDS*

(a) Based on 5kg/person per year per OWTS Expert Review Panel Final Report and average household size of 2.6 persons per household

(b) Average of four top performing MDE approved BAT systems (5/15/2016 Bay Restoration Fund Ranking Documentation)

© Per OWTS Expert Panel - 20% TN reduction occurs within a conventional gravity flow drainfield

# BAT System Cost/lb N Reduction

- ❑ 10-year average cost of MDE-approved BAT system \$13,500
- ❑ TN Reduction Range 8 lbs. – 14.4 lbs.
- ❑ **\$/lb. Reduction in TN \$94 - \$169**

# Why BAT Systems as a Nutrient Trading Tool?

- ❑ MDE-approved BAT systems as replacements for existing OSDS would be a credible and reliable source of N credits
  - Rigorous testing protocol
  - Long-term O&M contract requirements
- ❑ MDE-approved BAT systems would provide one of the lowest cost trading tools available
- ❑ Deep trading market potential

# BAT System Trading Potential Perspective

- 420,000 standard OSDS in Maryland
- 52,000 standard OSDS in the Critical Area
- 2.4 MM lbs. N credits needed to meet all MS4 requirements
- Retrofitting ~ 50% of Maryland's existing OSDS to BAT systems would meet the entire MS-4 offset
- Retrofitting all of the CA OSDS would offset almost one-third of the required off-set

# Keys for Success

- ❑ Homeowners/businesses need to be incentivized to retrofit their existing system:

**System benefits to homeowner + N credits > Cost of system**

- ❑ Aggregators to bundle
- ❑ Streamlined permitting process