

— Calvert County —
Bay Restoration
Fund Grant

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Calvert County, Maryland

Outline

- ◆ Calvert County History
- ◆ The BRF Grant: Our responsibilities
- ◆ Outreach, education, workshops
- ◆ Project/Property selection
- ◆ RFP review and vendor selection.
- ◆ Property Owner Agreement

Outline

- ◆ Time line and flexibility
- ◆ Installation & Inspections
- ◆ Happy customers / happy vendors
- ◆ The last straw (and grass seed & water)
- ◆ Our progress, challenges and future
- ◆ Contact info.

Calvert County Background

- ◆ Founded in 1654
- ◆ Population: 90,000 +/-
- ◆ Rapid growth rate down to 1% annual
- ◆ 85% of households utilize OSDS
- ◆ # of OSDS: 26,000+
- ◆ State Rank in Sq Miles: 23rd
- ◆ State Rank in Population: 16th
- ◆ Miles of Waterfront: 143 (17% of area is in the Critical Area – Patuxent River & Chesapeake Bay)

The Grant: Our Responsibilities

- ◆ Install up to 90 systems (2006-2008 grant)
- ◆ Install up to 95 systems (2008-2010 grant)
- ◆ Install up to 100 systems (2010-2012 grant)
- ◆ Estimated: 50% + of TN comes from OSDs
- ◆ State Priority: Failed or failing systems in the C.A.
- ◆ Grant Award includes five years operation and maintenance
- ◆ Remote monitoring

Outreach & Education

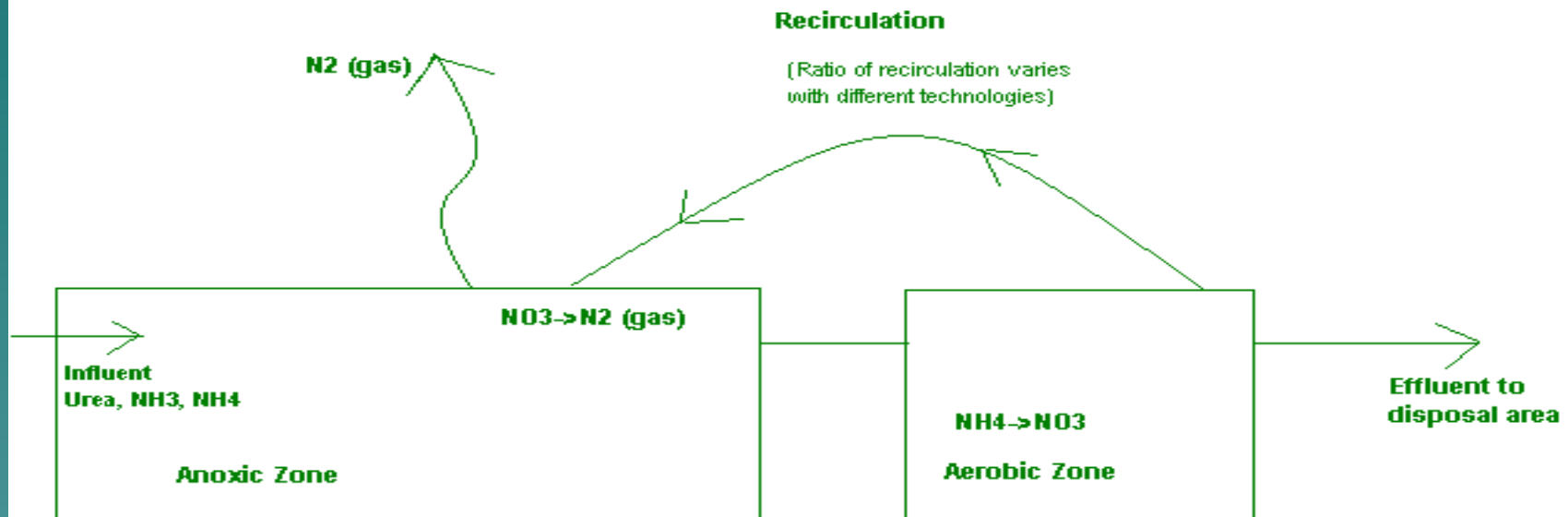
- ◆ Education seminars for residents and interested property owners.
- ◆ “Meet the Manufacturer” event – invited vendors and property owners.
- ◆ Visit and present to property owners associations, special events.
- ◆ Advertise through flyers, printed materials and word of mouth.

BAT systems: What are they?

- ◆ BAT (Best Available Technology) systems replace a conventional septic tank with technology that incorporates aerobic treatment as well as anaerobic treatment of wastewater.
- ◆ BAT systems are evaluated by the MDE through review of third party research studies (NSF 40 or 245, EPA ETV, or other university studies).
- ◆ All BAT systems must achieve a 50% Total Nitrogen reduction or 20 mg/L based on an assumed 40 mg/L influent TN.
- ◆ The first twelve systems of a kind must be composite sampled quarterly for a minimum of one year (MDE's minimum recommendation).

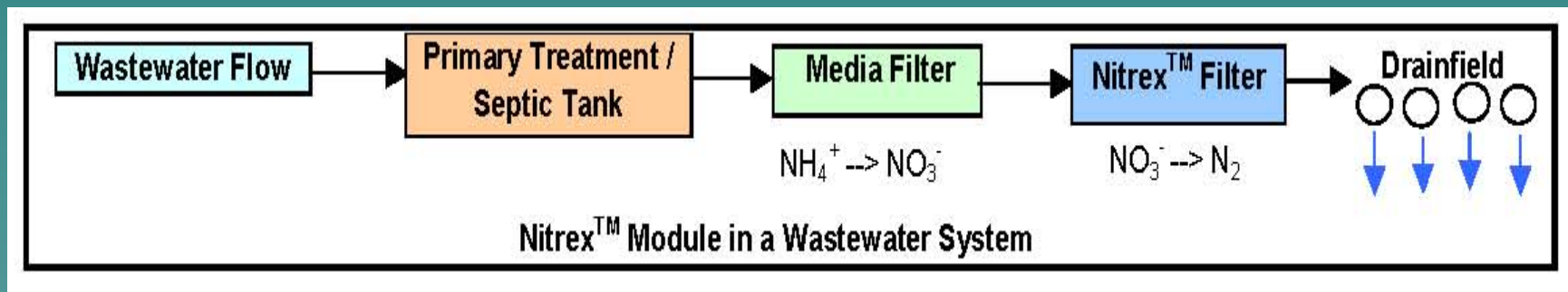
BAT systems: How do they work?

Basic and generalized process description for on-site treatment systems that incorporate nitrogen reduction



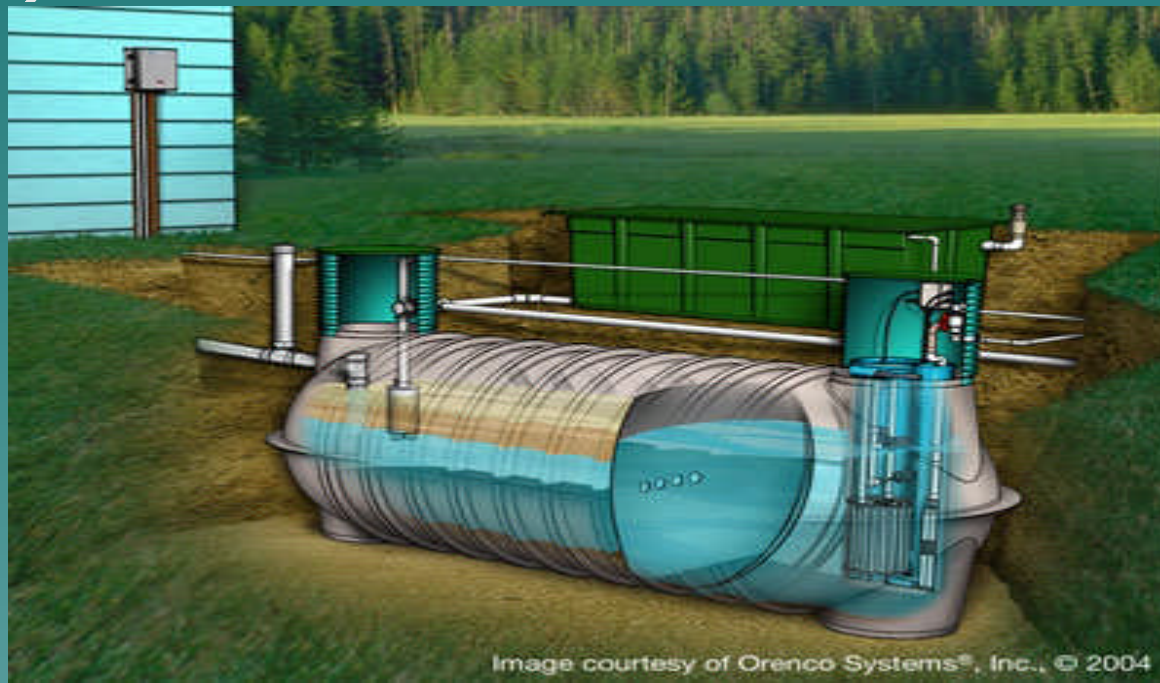
BAT system: How do they work?

An alternative to the basic and generalized process description would be an add-on filter like Nitrex, where denitrification takes place as a separate step in the process.



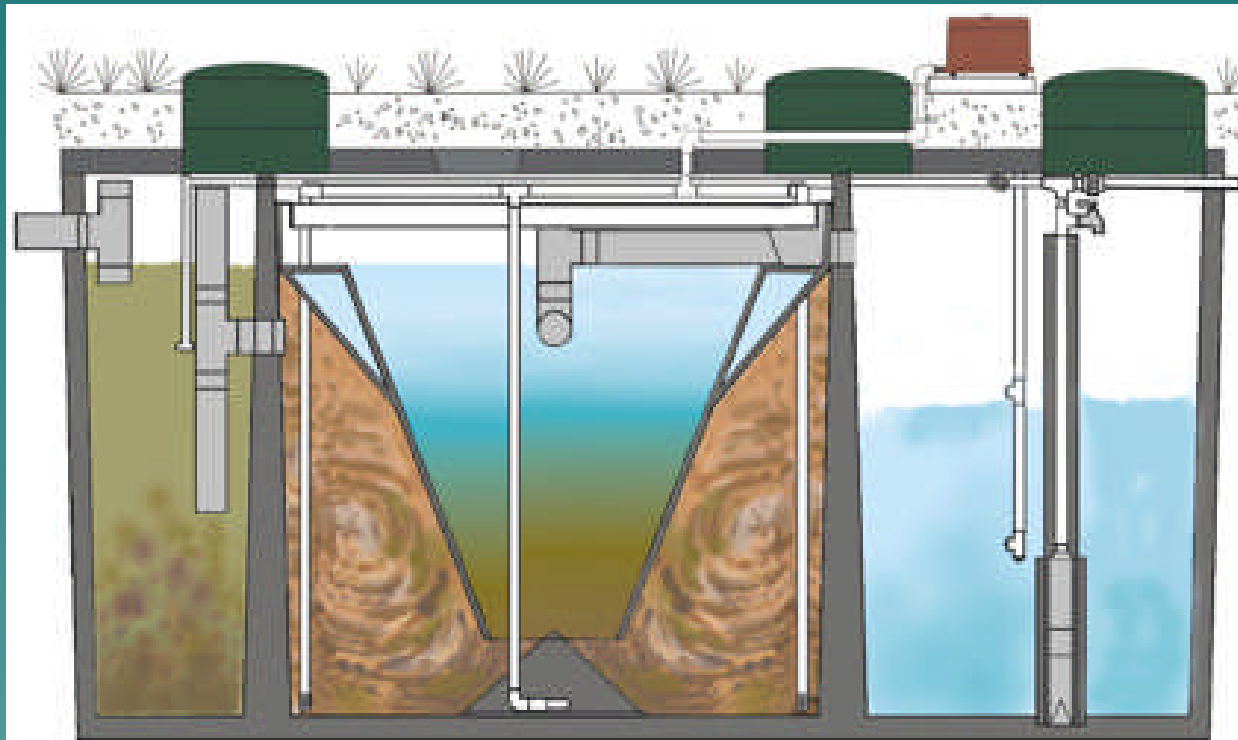
Examples of some technologies

- ◆ Orenco Advantex AX-20 (Concrete or fiberglass tank with a fiberglass filter pod)



Examples of some technologies

- ◆ Hoot 600 BNR (all in one concrete tank)



Examples of inspection reports and on-line monitoring systems

2/18/2007

RedGreen's Septic Service

109 Possum Lane
Bremerton, WA 98312

Phone: 360 598-7894
Fax: 360 569-4569

PROPERTY INFORMATION

Owner: The Dogs House	Assessor's Account Number: 23292323032323
Business Name (if applicable): The Dogs House	
Property Address: 109 Mosjon Circles	
City: Bremerton	County/Region: Kitsap
	State/Prov: WA
Property Type: Residential	Occupancy Type: Single Family

Mail To: The Dogs House
109 A Circle
Poulsbo
WA 95842

ONSITE SEWAGE SYSTEM INSPECTION REPORT

Inspection Date: 02/07/2007	Submittal Date: 02/07/2007	Next Inspection Due: 01/24/2008	Max. Design Flow (GPD): 360	Inspection Type: ROUTINE	Correction Status (if Applicable): Corrections in progress
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OVERALL SYSTEM STATUS

Deficiencies Noted: deficiencies must be corrected to ensure proper longevity of the Onsite Sewage System.

This report indicates certain characteristics of the on-site sewage system at the time of inspection. In no way is this report a guarantee of future operation or performance.

GENERAL INSPECTION NOTES

GENERAL SITE & SYSTEM CONDITIONS

The General Site and System Conditions were:	Partially Inspected	
All Components accessible for maintenance and in good condition (includes risers/monitoring ports etc.):	YES	
All Components watertight - no visual leaks (includes risers/monitoring ports etc.):	NO	Deficient
Surfacing effluent from any component (including mound seepage):	NO	
Improper encroachment (roads, buildings, etc.) onto component(s):	NO	
Component settling problems observed:	NO	
Abnormal ponding present for one or more of the disposal components:	NO	
Site maintenance required (e.g. Landscape maintenance) If yes, describe below:	YES	Deficient

Clear Brush Around Septic Tank.

SERVICE PROVIDER INFORMATION

Service Provider Company: RedGreen's Septic Service	Submitted by: Bob Jones
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Monitoring Systems

- ◆ All grant-funded systems are required to be telemetrically monitored for at least 5 years (we encourage continued participation in monitoring programs after that).
- ◆ Vendors of the treatment technologies are allowed to select the type of monitoring system to be used (assuming it meets all criteria)
- ◆ Several different types of monitoring systems will be used, but all of them will telemetrically report alarms.
- ◆ The maintenance provider is required to respond to the alarm, provide any necessary service, and report any service work to the County electronically.

System Selection

- ◆ All vendors on the MDE list are invited to bid
 - County provided aerial photos & topographic info
 - Site location map
 - Site evaluations prepared by the Health Department
- ◆ Bid Proposals provide the cost of the system with installation, O&M for 5 years, expected energy costs, Monitoring System and system design info.



Request for Proposal (RFP) Evaluations: Factors Considered

- ◆ Concern for the property owner
- ◆ Carbon Footprint
- ◆ Energy Usage Data for each system was required
 - Data provided by manufacturer
 - Verified by 3rd party
- ◆ 5 year O & M cost
- ◆ Cost of the installed system.

RFP Evaluations: Energy Usage Data

- ◆ Two power companies provide electricity to the County at \$.1255 kWh (Annual Average / 2008)
- ◆ Carbon Footprint Challenge: convert manufacturers numbers to cost per day; per year; per grant period (five years).
- ◆ MDE Approved Systems: Based on the latest information from the MDE website.

RFP Evaluations: Energy Usage Data

- ◆ Data by vendor verifiable with the exception of the on-demand systems
- ◆ 5-year data used because of 5 year Operation & Maintenance.
- ◆ 5-year energy consumption estimate ranges from \$115 to \$1210 (or from 6 to 66 cents per day)

RFP Evaluations: Energy Usage Data

Our goal is to fund systems that have the greatest nitrogen removing value when compared to their price and operating cost. Our formula:

$$\text{Rating} = \frac{\% \text{ Nitrogen Removal} \times 100}{\text{Cost of Installed System} + \text{Cost of Maintenance and Operation (5 years)} + \text{Cost of Energy (5 Years)}}$$

Evaluation Chart

Property Owner	BID: De-Nit 7200 System	% N Removal : De-Nit 2400	% Removed Per \$\$ (RATIO)	% Removed Per \$\$ Adjusted for energy Cost	BID: Maxi-Tech System63	% N Removal: Semi-Tech 20	% Removed Per \$\$ (RATIO)	% Removed Per \$\$ Adjusted for energy Cost
Estimated 5 yr energy:				\$143.40				\$400.00
Bowen	\$15,925	0.7250	0.00455	0.00451	\$12,500	0.6250	0.00500	0.00484
Clark	\$12,345	0.7250	0.00587	0.00581	\$11,500	0.6250	0.00543	0.00525
Fowler	\$14,475	0.7250	0.00501	0.00496	\$12,500	0.6250	0.00500	0.00484
King	\$14,675	0.7250	0.00494	0.00489	\$12,250	0.6250	0.00510	0.00494
Zinn	\$16,500	0.7250	0.00439	0.00436	N.A.	0.6250		

Property Owner Agreement

- ◆ Developed with MDE and County Attorney
- ◆ Provided to the property owner during award process
- ◆ Must be signed before grant award to vendor
- ◆ County records the Agreement in the Land Records.

Timing, Installation and Happy Customers (and Vendors)

- ◆ Timing: working with the contractor, the owner and the environment.
- ◆ Currently for FAILED systems or those with a metal tank.
- ◆ Payment terms: happy owners = happy vendors (payment time).
- ◆ Final cover: landscape restoration.



Progress to Date

- ◆ Nearly 200 systems installed since October, 2007.
- ◆ Average cost per system: @\$12,000
- ◆ Time to install: three months (from bid to final inspection)
- ◆ >200 applicants.
- ◆ Current funding for 20.



Challenges

- ◆ The “Unknown” – no existing system history, not knowing where things are or what was done in the past.
- ◆ Property owners:
 - Who change their minds
 - Accept advice from neighbors & ‘friends’
 - Abandon their property
 - Who aren’t good neighbors
 - Who don’t communicate!

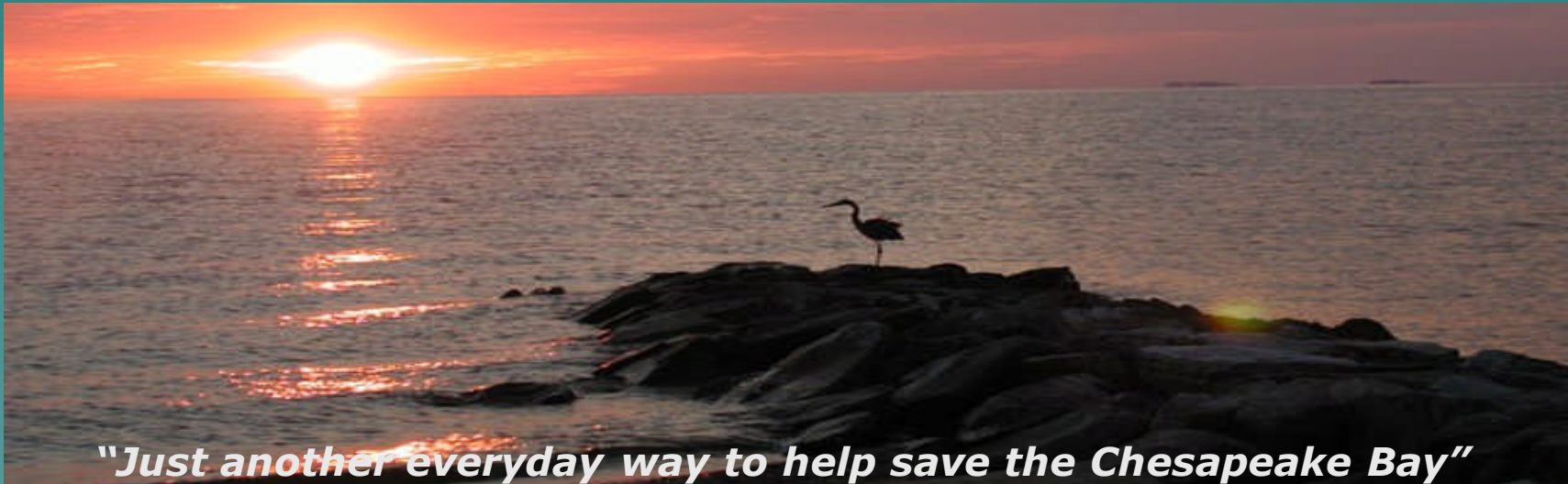
Contact:

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Calvert County Department of Planning & Zoning
410.535.1600 x 2336

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410.535.3922



"Just another everyday way to help save the Chesapeake Bay"