



Florida Department of Health  
Bureau of Onsite Sewage Programs  
Research Review and Advisory Committee Meeting

**DATE AND TIME:** July 30, 2008 at 9:30 am

**PLACE:** Orlando Airport Marriott  
7499 Augusta National Drive  
Orlando, FL 32822  
(407) 859-0552

This meeting is open to the public

**AGENDA:** FINAL July 29, 2008 Elke Ursin

1. Introductions
2. Review Minutes of Meeting 5/29/2008
3. Discussion on Scope of Work for Onsite Sewage Nitrogen Reduction Strategies
4. Discussion on Scope of Work for Statewide Inventory of Onsite Sewage Systems in Florida
5. Brief updates on Ongoing and Future Projects
6. Other Business
7. Public Comment
  - a. Green's Environmental Comments on Alternative Solution for Nitrogen Control in Wastewater
8. Closing Comments, Next Meeting, and Adjournment

Title Page

STATE OF FLORIDA  
DEPARTMENT OF HEALTH  
DIVISION OF ENVIRONMENTAL HEALTH  
BUREAU OF ONSITE SEWAGE PROGRAMS

INVITATION TO NEGOTIATE  
FOR  
STATEWIDE INVENTORY OF ONSITE SEWAGE TREATMENT AND DISPOSAL  
SYSTEMS IN FLORIDA

Vendor Name \_\_\_\_\_

Vendor Mailing Address \_\_\_\_\_

City-State-Zip \_\_\_\_\_

Telephone Number \_\_\_\_\_

Email Address \_\_\_\_\_

Federal Employer Identification Number (FEID) \_\_\_\_\_

Authorized Signature (Manual) \_\_\_\_\_

Authorized Signature (Typed) and Title \_\_\_\_\_

STATEWIDE INVENTORY OF ONSITE SEWAGE TREATMENT AND DISPOSAL SYSTEMS IN FLORIDA

Timeline

EVENT	DUE DATE	LOCATION
ITN Advertised - Released	September 1, 2008	Vendor Bid System: <a href="http://vbs.dms.state.fl.us/vbs/main_menu">http://vbs.dms.state.fl.us/vbs/main_menu</a>
Questions Submitted in Writing	Prior to 3:00 PM EST September 15, 2008	Submit to: Florida Department of Health Purchasing – [enter administrative lead name], Suite 310 4052 Bald Cypress Way, Bin B07 Tallahassee, Florida 32399-1749 Fax: (850) xxx-xxxx E-mail: [enter administrative lead name]@doh.state.fl.us
Optional Pre-Proposal Conference	September 22, 2008	Department of Health 4042 Bald Cypress Way Conference Room 240 P Tallahassee, Florida 32399
Answers to Questions	September 23, 2008	Posted electronically via the following Internet site: <a href="http://vbs.dms.state.fl.us/vbs/main_menu">http://vbs.dms.state.fl.us/vbs/main_menu</a>
Sealed Proposals Due and Opened	<b>Must be received PRIOR to: 3:00 PM EST</b> October 1, 2008	Florida Department of Health Purchasing – [enter administrative lead name], Suite 310 4052 Bald Cypress Way, Bin B07 Tallahassee, FL 32399-1749
Anticipated Evaluation of Written Proposals	Beginning October 1, 2008	Individual Evaluation of written proposals – Note: any Evaluation Team Meetings will be publicly noticed.
Anticipated Evaluation of Oral Presentations	October 8, 2008	Research Review and Advisory Committee Public Meeting Location to be determined
Anticipated Beginning Negotiations	October 20, 2008	Department of Health 4042 Bald Cypress Way Tallahassee, Florida 32399
Anticipated Posting of Intent to Award	October 21, 2008	Vendor bid system: <a href="http://vbs.dms.state.fl.us/vbs/main_menu">http://vbs.dms.state.fl.us/vbs/main_menu</a>

## SECTION 3.0 INTRODUCTORY MATERIALS

### 3.1 Statement of Purpose

The purpose of this Invitation to Negotiate (ITN) is to solicit responses from qualified vendors to provide an inventory of all onsite sewage treatment and disposal systems in Florida for the Division of Environmental Health, Bureau of Onsite Sewage Programs. This number is estimated to be 2.5-million systems.

### 3.2 Term

The initial term of the contract resulting from this solicitation shall end on June 30, 2009.

### 3.3 Definitions

ArcMap – Geographic Information Systems (GIS) software component that is used for all map-based tasks including cartography, map analysis, and editing.

ATU – Aerobic treatment unit, a treatment receptacle that utilizes air to further treat wastewater prior to discharge into a drainfield

Conventional System – Standard septic tank and drainfield to treat wastewater on site that does not perform advanced treatment

CHD – County Health Department – There is a County Health Department in each of Florida's 67 counties

DEH – The Division of Environmental Health within the Florida Department of Health

DOH – The Florida Department of Health or the department

EHDB – Environmental Health Database – Proprietary database currently managing the Onsite Sewage data for the DEH and counties

FAC – Florida Administrative Code

Geo-code – Assigning geographic identifiers derived from address information to a format compatible with ArcMap in a projection compatible with DOH standards

IT – Information Technology - DOH division responsible for approving and setting DOH standards for computer hardware, off-the shelf software, and approving customized applications

OSTDS – Onsite Sewage Treatment and Disposal Systems

RRAC – Research Review and Advisory Committee, a committee with the Florida Department of Health, Division of Environmental Health, that develops priorities for research in onsite sewage, reviews and ranks research proposals, and reviews project reports

PBTS – Performance Based Treatment System, a type of OSTDS that has been designed to meet specific performance criteria for certain wastewater constituents

State - The State of Florida and legally authorized employees, agents, contractors, or vendors acting on behalf of the aforementioned for the purpose of conducting State business

TRAP – Technical Review and Advisory Panel, a panel with the Florida Department of Health, Division of Environmental Health, that assists the department with rule adoption

## **SECTION 4.0 TECHNICAL SPECIFICATIONS**

### **4.1 Scope of Service**

This inventory will cover the entire state of Florida and may involve interaction with local governments and utilities. The final deliverable shall include location information as well as minimal system information as available, for all systems, in a format that can be indexed, geo-coded, and updated. The deliverables shall meet the Department of Health's IT standards.

### **4.2 Programmatic Authority**

The Bureau of Onsite Sewage Programs operates under Section 381.0065 et seq. of the Florida Statutes. Chapter 381.0065(3)(c) directs the department to “develop a comprehensive program to ensure that onsite sewage treatment and disposal systems ... are sized, designed, constructed, installed, ... operated, and maintained ... to prevent groundwater contamination and surface water contamination”. 381.0065(3)(j) specifically directs the Department of Health to award research projects “through competitive negotiation, using the procedures provided in s. 287.057, to public or private entities that have experience in onsite sewage treatment and disposal systems in Florida and that are principally located in Florida”.

Laws of Florida, 2008-152, includes Specific Appropriation 1682 requiring “from the research fees collected pursuant to section 381.0066, Florida Statutes, \$150,000 shall be used by the Department of Health to provide a statewide inventory of onsite treatment and disposal systems.”

### **4.3 Major Program Goals**

The mission of the Department of Health is to promote and protect the health and safety of all Floridians. The Bureau of Onsite Sewage Programs' mission is to protect the public health and environment by developing and promoting a comprehensive onsite sewage program. The vision of the bureau is to make the Florida onsite sewage program a model for the nation using research as the cornerstone to develop scientific standards. The bureau does not have a comprehensive inventory of the approximate 2.5-million onsite sewage systems under its jurisdiction. Such an inventory is necessary for the department to accurately estimate the impact of these systems on the environment. This inventory is a fundamental component of the bureau's future plans regarding improvement, maintenance, and management of these systems and expansion of ongoing research.

### **4.4 Task List**

The successful respondent shall perform at least the following tasks:

#### **a) Identify data sources**

## STATEWIDE INVENTORY OF ONSITE SEWAGE TREATMENT AND DISPOSAL SYSTEMS IN FLORIDA

- i. OBJECTIVES: Identify the developed properties that use sewage treatment systems under the jurisdiction of DOH
  - ii. ACTIVITIES: The respondent will address the questions of:
    - 1. How best to identify developed properties? [Suggested data source: County Property Appraisers]
    - 2. How best to distinguish the method of wastewater disposal? [Suggested data source: Private and public utilities]
    - 3. How best to determine the minimal information about each onsite system (tank size, drainfield size, etc.)? [Suggested data sources: County Health Department records, septic tank pumper records, septic tank contractor voluntary inspection records]
  - iii. DELIVERABLES: List of the data sources
- b) Gather data**
- i. OBJECTIVES: Collect data from the identified data sources
  - ii. ACTIVITIES: The respondent shall:
    - 1. Make contact with data sources identified in Task A
    - 2. At a minimum the following data fields are required: parcel identification number, property address, data source, latitude and longitude, lot/block/subdivision information, method of sewage disposal
    - 3. At minimum, the following supplemental data fields are required when available: most current OSTDS-permit identifier, estimated flow, estimated tank size, drainfield size, lot size, house size, system type (conventional system, ATU, PBTS), date and result of last inspection, date of next required inspection
  - iii. DELIVERABLES: Report accepted by the department, documenting source contact information for each source and number of records from each source
- c) Develop database structure**
- i. OBJECTIVES: Create a database structure to house the data
  - ii. ACTIVITIES: The respondent shall:
    - 1. Utilize the data collected in Task B to develop a database structure. At a minimum the database shall include the required and supplemental fields listed in Task B
    - 2. Implement a method to address shared systems and multiple systems on one parcel
    - 3. Implement a method to receive regular updates from property records or the EHDB in order to remove active systems when they are abandoned and update records with the most current permit information
  - iii. DELIVERABLES: Data dictionary including a full description of all fields to be included in the database
- d) Integration and extraction of data**
- i. OBJECTIVES: Combine all of the gathered data into a single source
  - ii. ACTIVITIES: The respondent shall:
    - 1. Create a single list of all developed properties in the state [Suggestion: Use the developed properties listing from the Property Appraiser's offices]
    - 2. Identify properties not served by wastewater systems served under DOH jurisdiction [Suggestion: Use utilities listing to remove properties]
    - 3. Use supplemental data sources to populate supplemental fields when available
  - iii. DELIVERABLES: Report accepted by the department, documenting number of developed properties (records identified in a), number of properties removed

## STATEWIDE INVENTORY OF ONSITE SEWAGE TREATMENT AND DISPOSAL SYSTEMS IN FLORIDA

from dataset (records identified in b), number of properties under DOH jurisdiction remaining in dataset, number of properties where supplemental data were available and included (records identified in c)

### e) Index and geo-code the data

- i. OBJECTIVES: Provide a unique identifier to allow each property and each OSTDS to be individually mapped with a minimum success rate of 90%
- ii. ACTIVITIES: The respondent shall:
  1. Utilizing Accumail, or other DOH approved software assign geographic identifiers derived from address information in a format compatible with ArcMap in a projection compatible with DOH standards
- iii. DELIVERABLES: Report indicating how many records were successfully geocoded and a list of which records were not

### f) Final project database

- i. OBJECTIVES: Final database including all combined records
  - ii. ACTIVITIES: The respondent shall:
    1. Populate the database with the inventory records
  - iii. DELIVERABLES: Provide the department with a database containing all data and including all raw data from all data sources. Full documentation of all data sources and methods used.
- 

## 4.22 Required Documentation

The following documentation shall be submitted by respondents participating in this solicitation

- Proposal including sections outlined in sections 4.24 and 4.25 of this ITN
- Attachment II –Respondent Qualifications
- Attachment III – Reference Form
- Attachment VII – Required Certification Form
- Attachment VIII – Additional Certifications

## 4.23 Evaluation of Proposal

Each response will be evaluated and scored based on the criteria defined in Attachment V and Attachment VI. This is a two step process: with an evaluation of written proposals and an evaluation of oral presentations.

### 4.23.1 Evaluation of Written Proposals

The Written Proposal Evaluation Criteria Worksheet (Attachment V) will be used by the selection review committee to designate the point value assigned to each proposal. The scores of each member of the selection review committee will be averaged with the scores of the other members to determine the final scoring. The selection review committee will develop points of common weakness or strength that respondents shall specifically address in their oral presentations (see 4.23.2).

In determining vendor responsibility, the agency may consider any information or evidence which comes to its attention and which reflects upon a vendor's capability to fully perform the contract requirements and/or the vendor's demonstration of the level of

integrity and reliability which the agency determines to be required to assure performance of the contract.

At the department's discretion, respondents with the highest scores may be invited to give oral presentations to a presentation evaluation committee. The order of presenters will be determined by lot. Participants will be invited by email and phone to give oral presentations. The invitation will include time and location of the presentation, the points of common weakness, and the scoring methodology used for the evaluation of presentations.

#### **4.23.2 Evaluation of Oral Presentations**

The selected respondents will present their proposal to the presentation evaluation committee, which is the department's Onsite Sewage Research Review and Advisory Committee (RRAC). The presentation evaluation committee members will use the Oral Presentation Evaluation Criteria Worksheet (Attachment VI) to score and subsequently rank the presenters. The average rank of all evaluators will determine the final ranking of respondents. The presentation evaluation committee will recommend to the department whether or not to pursue separate contracts for tasks.

The scoring of proposals establishes a reference point from which to make negotiation decisions. It in no way implies that a contract will be awarded. The department reserves the right to award more than one contract resulting from evaluation of proposals submitted in response to this ITN, as well as the right to reject all proposals.

Negotiation will commence with the respondent who has the highest ranking as assigned by the presentation evaluation committee. Prior to the beginning of negotiations, the respondent shall have submitted a completed truth-in-negotiation certificate (Attachment VIII). If negotiations with this respondent are unsuccessful the respondent who ranks the next highest will be contacted, and negotiations will begin with that respondent and so on.

#### **4.24 Description of Approach to Performing Tasks**

The proposal shall include the following sections to provide insight into the respondent's approach to providing the services as specified in this solicitation. The respondent will address all areas of work within the Task List. The respondent's approach will demonstrate a thorough understanding and insight into this project.

##### **4.24.1 Introduction (2 page limit)**

Provide a brief narrative that demonstrates that the respondent understands the project described by this ITN, and its intention to meet the purpose and the needs of the project (3.1 and 3.2).

##### **4.24.2 Company Background (2 page limit)**

This section shall provide information on the historical background of the respondent and on the respondent's organization structures. This should include years in operation and years involved in services that are relevant to the services being requested in this ITN.

**4.24.3 Willingness to meet time and budget constraints (2 page limit)**

The respondent shall state the willingness to meet the time and budget constraints of the department. These include completion within the milestones provided in 4.4, and within a budget that cannot exceed \$150,000. Final budget constraints depend on availability of funding.

**4.24.4 Description of Approach (5 page limit)**

The respondent shall describe the approach proposed to achieve the purposes of the project. The description should address at least the following elements with consideration of the questions posed in 4.4 (a):

- a) Identify data sources
- b) Gather data
- c) Develop database structure
- d) Integration and extraction of data
- e) Index and geo-code the data
- f) Final project database

**ATTACHMENT I**  
ITN QUESTIONNAIRE

- 1) **Introduction (2 page limit) (4.24.1)** How does the respondent understand the purpose and the needs of the project and how will the respondent intend to meet this?
- 2) **Company Background (2 page limit) (4.24.2)** Does the history of the respondent, including the number of years in operation relevant to the project, and the organizational structure of the respondent, provide assurance that respondent is capable to perform work?
- 3) **Willingness to meet time and budget constraints (4.24.3)** Is the respondent willing to complete a project by June 30, 2009 and within a budget of \$150,000.00?
- 4) **Description of Approach to Performing Tasks Required by Section 4.4 (4.24.4) (5 page limit)** How well does the respondent address the following issues:
  - a) Approach to identifying data sources
  - b) Approach to gathering the data
  - c) Approach to developing the database structure
  - d) Approach to integrating and extracting these data
  - e) Approach to indexing and geo-coding these data
  - f) Approach to compiling the final project database
- 5) **Qualifications/ Organizational Capacity (Attachment II) (4.25.1)**
  - a) To what extent does the respondent or its proposed subcontractors have the qualifications and staff to perform the work? What personnel will provide the technical services; include the main non-administrative employees who will be responsible for the implementation of the contract resulting from this ITN. Are the qualifications of staff appropriate to the tasks assigned to them in regards to data collection, data management, and project coordination?
  - b) How similar are the projects that the respondent has performed to the one proposed in regard to the methodology that the respondent intends to use? How successful have these projects been (definitive results, guidance for decision making)?
  - c) What additional benefits can the respondent provide that have not been included so far, such as but not limited to, a history of projects in this area, partnering with other organizations, leveraging of funds?
- 6) **Description of Project and Workload Management (4 page limit) (4.25.2)** Does the organization of the project ensure that all necessary skills are present and managed effectively (refer to organization chart submitted as part of Attachment II)? How will the management methods outlined allow to keep costs and schedule under control, maintain qualified staffing, track project progress, and assure the quality of gathered data and their management? What types of corrective actions are foreseen to address problems? Is there potential for conflicts of interests and how will this be addressed?
- 7) **Past Performance References (4.9)** How well do the reports of past performance reflect upon the respondent on average? (Past performance for three clients shall be rated according to Attachment IV and averaged. Where past performance cannot be determined it shall be given a rating of 5)
- 8) **Subcontractor Documentation (4.25.2)** Are proposed subcontracts documented by a 1-page letter on subcontractor letterhead, identifying the solicitation number, project title, and prime contractor with whom the firm intends to subcontract? Failure to submit such a letter from an intended subcontractor shall result in the disallowance of the qualifications and experience of the subcontractor from consideration in the evaluations process.

**STATEWIDE INVENTORY OF ONSITE SEWAGE TREATMENT AND DISPOSAL SYSTEMS IN FLORIDA**

**ATTACHMENT V**

**WRITTEN PROPOSAL EVALUATION CRITERIA WORKSHEET**

Responder Name: \_\_\_\_\_

Evaluator Name: \_\_\_\_\_

Date: \_\_\_\_\_

This sheet will be used by evaluators to assign scores to all written proposals. Evaluators will judge the presence and quality of each response in assigning a score (see Attachment I for questions). The scores range from the highest score representing an excellent response to a zero representing no response. The higher the score the better the response.

<b>ITN Questionnaire Question Number</b>	<b>Point Value</b>	<b>Points Awarded</b>
1. Introduction (4.24.1)	0 - 4	
2. Company Background (4.24.2)	0 - 4	
3. Willingness to meet time and budget constraints (4.24.3)	0 - 8	
4. Description of Approach to Performing Tasks Required by Section 4.4 (4.24.4) (5 page limit)		
a) Identify data sources	0 - 6	
b) Gather data	0 - 6	
c) Develop database structure	0 - 8	
d) Integration and extraction of data	0 - 10	
e) Index and geo-code the data	0 - 4	
f) Final project database	0 - 4	
5. Qualifications/ Organizational Capacity (Attachment II) (4.25.1)		
a) qualification of staff	0 - 8	
b) relevance of past projects	0 - 8	
c) additional benefits	0 - 4	
6. Description of Project and Workload Management (4.25.2) (4 page limit)		
a) organization and assignment of staff	0 - 4	
b) project and quality management	0 - 4	
c) potential for conflicts of interests	0 - 4	
7. Past Performance references (4.9) (average of three, according to Attachment IV)	0 - 14	
8. Subcontractor Documentation (5.7)	yes/no	
<b>Total</b>	<b>100</b>	
	<b>POSSIBLE</b>	<b>AWARDED</b>

STATEWIDE INVENTORY OF ONSITE SEWAGE TREATMENT AND DISPOSAL SYSTEMS IN FLORIDA

**ATTACHMENT VI**

ORAL PRESENTATION EVALUATION CRITERIA WORKSHEET

Evaluator Name: \_\_\_\_\_

Date: \_\_\_\_\_

A sheet such as this will be used by evaluators to assign scores and subsequent ranks to all respondents for each element in the scope outlined in Section 4.24.4. Evaluators will judge the presence and quality of each proposal by assigning a score. The scores range from the highest score representing an excellent response to a zero representing no response. The higher the score the better the response. The score is then converted to a rank, with 1 being the best respondent.

Presentation Evaluation Criterion	Possible Score	Proposal 1	Proposal 2	Proposal 3
Qualifications/ Organizational Capacity (4.25.1): How well does the respondent address issues such as -qualification of staff -relevance of past performance to this project	5			
Description of Approach to Performing Tasks Required by Section 4.4 (4.24.4) How well does the respondent address a) Identify data sources b) Gather data c) Develop database structure d) Integration and extraction of data e) Index and geo-code the data f) Final project database	10			
Project and Workload Management (4.25.2): How well does the respondent address issues such as -organization and assignment of staff -project and quality management -potential for conflicts of interests	5			
Willingness to meet time and budget constraints (4.24.3): How well does the respondent address the question if this project can be completed within twelve months and within budget.	5			
	<b>Possible</b>	<b>AWARDED</b>	<b>AWARDED</b>	<b>AWARDED</b>
<b>Score</b>	<b>25</b>			
<b>Rank</b>	<b>Rank (1=best, 3=worst)</b>			

Proposals with the same score will receive their average rank, e.g. two proposals tied for first and second place will both receive a ranking of 1.5

1682 SPECIAL CATEGORIES CONTRACTED SERVICES FROM GENERAL REVENUE FUND . . . . . 8,225 FROM ECOSYSTEM MANAGEMENT AND RESTORATION TRUST FUND . . . . . 6,750 FROM FEDERAL GRANTS TRUST FUND . . . . . 30 FROM LAND ACQUISITION TRUST FUND . . . . . 1,100 FROM PERMIT FEE TRUST FUND . . . . . 5,370 FROM WATER PROTECTION AND SUSTAINABILITY PROGRAM TRUST FUND . . . . . 1,000,000 From the funds in Specific Appropriation 1682 , \$1 million from the Water Protection and Sustainability Program Trust Fund shall be transferred to the Department of Health to further develop cost-effective nitrogen reduction strategies. The Department of Health shall contract, by request for proposal, for Phase I of an anticipated 3-year project to develop passive strategies for nitrogen reduction that complement use of conventional onsite wastewater treatment systems. The project shall be controlled by the Department of Health's research review and advisory committee and shall include the following components: 1) comprehensive review of existing or ongoing studies on passive technologies; 2) field-testing of nitrogen reducing technologies at actual home sites for comparison of conventional, passive technologies and performance-based treatment systems to determine nitrogen reduction performance; 3) documentation of all capital, energy and life-cycle costs of various technologies for nitrogen reduction; 4) evaluation of nitrogen reduction provided by soils and the shallow groundwater below and down gradient of various systems; and 5) development of a simple model for predicting nitrogen fate and transport from onsite wastewater systems. A progress report shall be presented to the Executive Office of the Governor, the President of the Senate and the Speaker of the House of Representatives on February 1, 2009, including recommendations for funding additional phases of the study.

The Department of Health shall also submit a report to the Executive Office of the Governor, the President of the Senate and the Speaker of the House of Representatives by no later than October 1, 2008, which identifies the range of costs to implement a mandatory statewide 5-year septic tank inspection program to be phased in over 10 years pursuant to the Department of Health's procedure for voluntary inspection, including use of fees to offset costs.

From the research fees collected pursuant to section 381.0066, Florida Statutes, \$150,000 shall be used by the Department of Health to provide a statewide inventory of onsite treatment and disposal systems.

Title Page

STATE OF FLORIDA

DEPARTMENT OF HEALTH

DIVISION OF ENVIRONMENTAL HEALTH

BUREAU OF ONSITE SEWAGE PROGRAMS

INVITATION TO NEGOTIATE

FOR

FLORIDA ONSITE SEWAGE NITROGEN REDUCTION STRATEGIES:  
TECHNOLOGY EVALUATION, CHARACTERIZATION OF ENVIRONMENTAL  
FATE AND TRANSPORT, AND AN ASSESSMENT OF COSTS

Vendor  
Name \_\_\_\_\_

Vendor Mailing  
Address \_\_\_\_\_

City-State-  
Zip \_\_\_\_\_

Telephone  
Number \_\_\_\_\_

Email  
Address \_\_\_\_\_

Federal Employer Identification Number (FEID)  
\_\_\_\_\_

Authorized Signature (Manual)  
\_\_\_\_\_

Authorized Signature (Typed) and  
Title \_\_\_\_\_

FLORIDA ONSITE SEWAGE NITROGEN REDCUCTION STRATEGIES

Timeline

EVENT	DUE DATE	LOCATION
ITN Advertised - Released	September 1, 2008	Vendor Bid System: <a href="http://vbs.dms.state.fl.us/vbs/main_menu">http://vbs.dms.state.fl.us/vbs/main_menu</a>
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## SECTION 3.0 INTRODUCTORY MATERIALS

### 3.1 Statement of Purpose

The purpose of this Invitation to Negotiate (ITN) is to identify respondents interested in an anticipated 3-year project to develop passive strategies for nitrogen reduction that complement use of conventional onsite sewage treatment and disposal systems. The 2008 Florida legislature has appropriated one-million dollars for Phase I of this project to further develop cost-effective nitrogen reduction strategies. The project shall be controlled by the Department of Health's Research Review and Advisory Committee. The Florida Department of Health (DOH) seeks one or several respondents to conduct tasks addressing the following issues: 1) comprehensive review of existing or ongoing studies on passive technologies; 2) field-testing of nitrogen reducing technologies at actual home sites for comparison of conventional, passive technologies, and non-passive performance-based treatment systems to determine nitrogen reduction performance; 3) documentation of all capital, energy and life-cycle costs of various technologies for nitrogen reduction; 4) evaluation of nitrogen reduction provided by soils and the shallow groundwater below and down gradient of various systems; and 5) development of a simple model for predicting nitrogen fate and transport from onsite sewage treatment and disposal systems. Basic components of the project are described in Section 4. Funding for future years is dependent on future legislative appropriations. The total cost of the contract will not exceed \$5,000,000.

### 3.2 Term

The initial term of the contract resulting from this solicitation shall be three (3) years.

### 3.3 Definitions

ATU – Aerobic treatment unit

Conventional drainfield material – Gravel as specified in 64E-6.014(5) FAC

Conventional System – Standard septic tank and drainfield to treat wastewater on site that does not perform advanced treatment

DOH – Florida Department of Health or the department

FAC – Florida Administrative Code

Florida onsite sewage nitrogen reduction strategies study- study that is subject of this Invitation to Negotiate

Media – Material that effluent from a septic tank passes through prior to reaching the groundwater. This may include saw dust, zeolites, tire crumbs, vegetative removal, sulfur, and spodosols.

OSTDS – Onsite Sewage Treatment and Disposal System

Passive – A type of onsite sewage treatment and disposal system that excludes the use of aerator pumps and includes no more than one effluent dosing pump with mechanical and moving parts and uses a reactive media to assist in nitrogen removal.

## FLORIDA ONSITE SEWAGE NITROGEN REDUCION STRATEGIES

QAPP – Quality Assurance Project Plan

PBTS – Performance Based Treatment System, a type of OSTDS that has been designed to meet specific performance criteria for certain wastewater constituents

Reactive media – Media that reacts with wastewater to reduce nitrogen concentrations

RRAC – Research Review and Advisory Committee, a committee with the Florida Department of Health, Division of Environmental Health, that develops priorities for research in onsite sewage, reviews and ranks research proposals, and reviews project reports

State - The State of Florida and legally authorized employees, agents, contractors, or vendors acting on behalf of the aforementioned for the purpose of conducting State business

TN - Total Nitrogen concentration in a water sample (mg/L)

### **SECTION 4.0 TECHNICAL SPECIFICATIONS**

#### **4.1 Scope of Service**

The successful respondent(s) shall perform technology evaluations; field work and monitoring of OSTDS and groundwater; analysis and evaluation of data. The respondent(s) shall also reach conclusions and provide recommendations.

In particular, the successful respondent(s) shall perform tasks in furtherance of the following scope:

- 1) Perform a comprehensive review of existing or ongoing studies on passive technologies;
- 2) Perform field-testing of nitrogen reducing technologies at actual home sites for comparison of conventional, passive technologies, and performance-based treatment systems to determine nitrogen reduction performance;
- 3) Provide documentation of all capital, energy and life-cycle costs of various technologies for nitrogen reduction;
- 4) Perform an evaluation of nitrogen reduction provided by soils and the shallow groundwater below and down gradient of various systems; and
- 5) Develop a simple model for predicting nitrogen fate and transport from onsite wastewater systems;
- 6) Present a progress report, including recommendations for funding additional phases of the study, on or before January 5, 2009. This will allow DOH time to meet the reporting deadline to the Executive Office of the Governor, the President of the Senate, and the Speaker of the House of Representatives of February 1, 2009

Deliverables will be reviewed by the Florida Department of Health and its Research Review and Advisory Committee. The successful respondent(s) shall prepare deliverables using software and hardware applications that are consistent with department standards (currently, Microsoft software, PC-compatible hardware).

#### **4.2 Programmatic Authority**

The Bureau of Onsite Sewage Programs operates under Section 381.0065 et seq. of the Florida Statutes. 381.0065(3)(c) directs the department to “develop a comprehensive program to ensure that onsite sewage treatment and disposal systems ... are sized,

## FLORIDA ONSITE SEWAGE NITROGEN REDUCION STRATEGIES

designed, constructed, installed, ... operated, and maintained ... to prevent groundwater contamination and surface water contamination". 381.0065(3)(j) specifically directs the Department of Health to award research projects "through competitive negotiation, using the procedures provided in s. 287.057, to public or private entities that have experience in onsite sewage treatment and disposal systems in Florida and that are principally located in Florida".

Laws of Florida, 2008-152, includes Specific Appropriation 1682 requiring "\$1 million from the Water Protection and Sustainability Program Trust Fund shall be transferred to the Department of Health to further develop cost-effective nitrogen reduction strategies. The Department of Health shall contract, by request for proposal, for Phase I of an anticipated 3-year project to develop passive strategies for nitrogen reduction that complement use of conventional onsite wastewater treatment systems. The project shall be controlled by the Department of Health's research review and advisory committee and shall include the following components: 1) comprehensive review of existing or ongoing studies on passive technologies; 2) field-testing of nitrogen reducing technologies at actual home sites for comparison of conventional, passive technologies and performance-based treatment systems to determine nitrogen reduction performance; 3) documentation of all capital, energy and life-cycle costs of various technologies for nitrogen reduction; 4) evaluation of nitrogen reduction provided by soils and the shallow groundwater below and down gradient of various systems; and 5) development of a simple model for predicting nitrogen fate and transport from onsite wastewater systems. A progress report shall be presented to the Executive Office of the Governor, the President of the Senate and the Speaker of the House of Representatives on February 1, 2009, including recommendations for funding additional phases of the study."

### **4.3 Major Program Goals**

The goals of the *Florida Onsite Sewage Nitrogen Reduction Strategies Study* are to develop passive strategies for nitrogen reduction that complement the use of conventional onsite sewage treatment and disposal systems to systematically evaluate the field performance and associated costs of such OSTDS nitrogen reduction strategies in comparison to conventional and existing technologies and to assess, and to model the environmental fate and transport of nitrogen discharged to the environment. Nitrogen loading is important to achieving the mission of the Bureau of Onsite Sewage Programs: "Protecting the public health and environment through a comprehensive onsite sewage program".

### **4.4 Task List**

The successful respondent(s) shall perform the following tasks. The department may consider splitting tasks between respondents, such as awarding 4.4 A and 4.4 B to one respondent, 4.4 C to another, and 4.4 D to a third, with each respondent responsible for their part. Draft deliverables will be reviewed by RRAC and the department. The department will approve all deliverables when completed to the department's satisfaction.

The successful respondent shall perform the tasks listed below.

#### **A) Preselection of technologies and prioritizing technology for testing**

- 1 Objectives: Evaluate and prioritize technologies for field testing, so that testing and further development can be phased in as funding becomes available over the three year anticipated project period.

## FLORIDA ONSITE SEWAGE NITROGEN REDUCION STRATEGIES

- 2 Activities: The following activities are currently expected to occur in achieving the objectives of this task. The respondent can propose a different set of activities to achieve the objectives of the task.
- 1) Assess what if any updates are needed to the literature review performed for the Department of Health in 2007 and provide a draft and a final revised literature review. The report can be found here:  
[http://www.doh.state.fl.us/environment/ostds/research/10-18-07Materials/FL\\_Passive\\_Nitrogen\\_Removal\\_Study.pdf](http://www.doh.state.fl.us/environment/ostds/research/10-18-07Materials/FL_Passive_Nitrogen_Removal_Study.pdf)
  - 2) Develop a classification scheme for technologies to allow comparisons (draft and final). A possible classification suggested by the authorizing language could be as follows:
    - a) Complements to conventional onsite systems: reduced authorized lot flow per acre, separate treatment (and disposal off site) of black water and/or urine, dosed vs. gravity drainfields, differing installation depths relative to vegetation and/or seasonal high water table, fill material modifications
    - b) Passive nitrogen removal system: a combination of a nitrification media filter and a denitrification media filter, including at most one effluent pump and excluding aerators
    - c) Active nitrogen removal system: onsite treatment system affecting nitrogen reduction in the effluent that is not passive because of aeration, number of pumps or active dosing of denitrification material
  - 3) Develop criteria to rank technology for order of testing during the years of the project (draft and final). The criteria shall address issues such as:
    - a) Maturity
      - i) Evaluation in test centers has occurred and system has at least innovative status in Florida; or system has completed innovative system testing in Florida with influent and effluent measurements
      - ii) Technology has been tested at test centers or evaluated in other states but has not been evaluated for innovative status in Florida
      - iii) Technology shows promise in small-scale experiments, needs test center data for comparison to other technologies
    - b) Effectiveness
      - i) Nitrogen reduction >80%
      - ii) Nitrogen reduction 65-80%
      - iii) Nitrogen reduction 50-65%
      - iv) Nitrogen reduction <50%
    - c) Trade-offs with pathogen removal
    - d) Expected cost
    - e) Differences to technologies previously tested
  - 4) Evaluate existing information about technologies relative to criteria to develop a priority list of technology testing over the projected three-year period of the project and determine areas of information need (draft and final).
  - 5) Develop information to address needs for technologies that are not mature enough to be permitted as innovative systems in Florida but rank highly otherwise. This could be accomplished in cooperation with NSF-testing facilities and/or manufacturers or engineers. Assist designer in completion of innovative system application.
  - 6) Summarize the progress of this task (draft and final), including recommendations for funding additional phases of the study with a final first progress report by January 1, 2009; May 1, 2009, and approximately semiannually thereafter in a report to the RRAC.
  - 7) Update the results of activity 4 yearly

**Comment [EXR1]:** This is territory of the plumbing code. How do we involve them?

## FLORIDA ONSITE SEWAGE NITROGEN REDUCION STRATEGIES

- 3 Deliverables.
  - 1) Draft and final updated literature review within one and two months of contract execution
  - 2) Draft and final classification of technologies within one and two months of contract execution
  - 3) Draft and final ranking criteria within one and two months of contract execution
  - 4) Draft and final priority list for testing within three and four months of contract execution
  - 5) Completed innovative system application.
  - 6) Draft and final of progress reports at specified intervals
  - 7) Draft and final revision of priority list for testing

### **B) Field testing of technologies at actual home sites and cost documentation**

- 1 Objectives: Obtain comparable data on costs and treatment effectiveness for a variety of technologies under field conditions. The emphasis will be on total nitrogen and other wastewater parameters (cBOD5, TSS, TP and fecal coliform) will be assessed in less detail.
- 2 Activities: The following activities are currently expected to occur in achieving the objectives of this task. The respondent can propose a different set of activities to achieve the objectives of the task.
  - 1) Development of a Quality Assurance Project Plan (QAPP). The respondent will develop a quality assurance project plan (QAPP) patterned after EPA guidelines (<http://www.epa.gov/quality/qs-docs/g5-final.pdf>). In this document the respondent will plan and describe the approach, sampling schemes, field work, analytical methods, and quality control procedures guiding the project. The document will address questions such as:
    - a) Achievable cost savings by different management strategies (individual owner decides about technology and maintenance entity vs. area-wide decision about technology and maintenance entity vs. cluster systems with common technology and common maintenance entity)
    - b) Recruitment of testing sites to achieve comparable influent and climatic conditions
    - c) Cost-sharing and instruments to provide incentives and assurance to system owners
    - d) Sampling and monitoring methodology to establish treatment effectiveness by mass balances at performance boundaries (influent, pretreatment effluent, drainfield, shallow groundwater)
    - e) Required length and frequency of monitoring
    - f) Evaluation of reduction effectiveness given within site and between site variability
    - g) Monitoring of costs, energy use and benefits (with focus on nitrogen, also addressing water conservation and irrigation)
    - h) Assessment of life-cycle costs and benefits and stakeholder satisfaction
    - i) Transition for systems out of project monitoring into permanent use
  - 2) Recruitment of homeowners for participation in the study
  - 3) Procurement, permitting, and installation of new systems and/or, existing system evaluation and instrumentation of existing systems
  - 4) Execution of performance-bonds that allow for system replacement if systems do not meet permit requirements
  - 5) Monitoring of influent and effluent flow, quality and ongoing costs and energy use
  - 6) Assessment of life-cycle costs and benefits and stakeholder satisfaction

## FLORIDA ONSITE SEWAGE NITROGEN REDUCION STRATEGIES

- 7) In cooperation with system designer, development of a technical guidance document for the design, installation, operation, maintenance and monitoring of each technology for nitrogen reduction.
- 8) After sampling is complete, system replacement or transfer of instrumentation to owner
- 9) Summarize the progress of this task (draft and final), including recommendations for funding additional phases of the study with a final first progress report by January 1, 2009; May 1, 2009, and approximately semiannually thereafter in a report to the RRAC.

### 3 Deliverables:

- 1) Two draft QAPPs and a final QAPP
- 2) Homeowner agreements to participate
- 3) Systems readied for sampling
- 4) Performance bond per system
- 5) Quarterly Monitoring results
- 6) Two draft and final report on life-cycle costs and benefits
- 7) Technical guidance document for each nitrogen reduction technology
- 8) Acceptance by owner of system
- 9) Draft and final Progress reports

### C) Evaluation of nitrogen reduction provided by soils and the shallow groundwater below and down gradient of various systems

- 1 Objectives: To summarize existing and collect additional data to quantify nitrogen reduction provided by soils and shallow groundwater. The emphasis will be on total nitrogen and other wastewater parameters (cBOD5, TSS, TP, and fecal coliform) will be assessed in less detail for additional characterization.

Option 1: It will also characterize seasonal variability of the respective processes, in particular in the Wekiva Study Area

Option 2: Incorporate summary of existing data from Task D

- 2 Activities. The following activities are currently expected to occur in achieving the objectives of this task. The respondent can propose a different set of activities to achieve the objectives of the task. These tasks may overlap with tasks in task 4.4.B.
  - 1) Prioritize pretreatment/drainfield configuration/soil combinations for testing in the phases of the project in cooperation with RRAC and the department. It is anticipated that differences between drip irrigation, pressure dosed and gravity-fed drainfields will be of interest.
  - 2) Summarize results of previous studies (option 2 only)
  - 3) Development of a Quality Assurance Project Plan (QAPP). The respondent will develop a quality assurance project plan (QAPP) patterned after EPA guidelines (<http://www.epa.gov/quality/qs-docs/g5-final.pdf>). In this document the respondent will plan and describe the approach, sampling schemes, field work, analytical methods, and quality control procedures guiding the project. The document will address questions such as:
    - a) Should soil and shallow groundwater processes be evaluated at the same site or should the evaluations be separated (e.g. soil evaluations in lab or test center experiments; shallow groundwater in the field)?

## FLORIDA ONSITE SEWAGE NITROGEN REDUCION STRATEGIES

- b) How can a mass balance of water, nitrogen and any other parameters be achieved at several locations and validated by comparison to tracer components to characterize the separate effects of processes, such as denitrification, nutrient uptake by plants, and dilution on nitrogen concentrations and loads?
  - c) How will sites be identified that have the desired combination of pretreatment, drainfield and soil? What should be the minimum system age (e.g. five years)? What should be evaluated in a site in addition to the existing system evaluation protocol?
  - d) What is the loading (flow and concentration) coming from the last treatment receptacle?
  - e) How will velocity of groundwater be determined, which has been identified by Heatwole and McCray (2006) as the most important parameter in modeling of nitrogen transport. How will dispersion and recharge be determined?
  - f) How will the importance of seasonal variability relative to other sources of variability be assessed and what is the required length and frequency of monitoring to characterize "average" conditions?
  - g) What will be the sampling and monitoring methodology to establish characterizations that are comparable to each other given within site and between site variability?
  - h) How should soil, groundwater, and weather conditions be characterized?
  - i) How will monitoring equipment be dealt with at the completion of the project?
  - 4) Recruitment of site owners for participation in the study and site evaluations of existing systems
  - 5) Instrumentation of sites
  - 6) Monitoring of groundwater quality, wastewater flow, and any other parameters identified in the QAPP.
  - 7) Report on each site detailing results of nitrogen reduction in soil and shallow groundwater, including monitoring results and mass balance estimates.
  - 8) After sampling is complete, system replacement or transfer of instrumentation to owner
  - 9) Summarize the progress of this task (draft and final), including recommendations for funding additional phases of the study with a final first progress report by January 1, 2009; May 1, 2009, and approximately semiannually thereafter in a report to the RRAC. The progress report will address the question if differences between sites exist.
- 3 Deliverables:
- 1) Draft and final priority list
  - 2) Two drafts and a final summary of previous studies on soil and shallow groundwater fate and transport of nitrogen onsite systems (option 2 only)
  - 3) Two drafts and final QAPP
  - 4) Completed site evaluations
  - 5) Completed instrumentation of sites
  - 6) Monitoring reports with sample parameters per QAPP
  - 7) Two draft and final report on nitrogen reduction in soils and shallow groundwater at each site
  - 8) Acceptance by owner of completed study
  - 9) Draft and final progress reports

### **D) Development of a simple model for predicting nitrogen fate and transport from onsite wastewater systems**

## FLORIDA ONSITE SEWAGE NITROGEN REDUCION STRATEGIES

### 1 Objectives:

Option 1: to adapt or develop and validate a simple model that can predict location and extent of the average plume of an individual OSTDS, given information on factors such as sewage flow, recharge, drainfield type, soil, and groundwater flow velocity

Option 2: to adapt or develop and validate a model that can predict time-variable location and extent of the plume of an individual OSTDS, given information on factors such as sewage flow, recharge, drainfield type, soil, and groundwater flow velocity. To develop simplifications of the model that apply to certain combinations conditions

Option 3: to adapt or develop a classification model for aerial nitrogen input and loading (lbs/acre) to groundwater from onsite systems depending on factors such as pretreatment, recharge, soil conditions and property size

Option 4: to adapt or develop and validate a model that describes the transition from individual plumes from onsite systems to an average aerial load

Option 5: to adapt or develop and validate a model that describes the watershed-scale transport of nitrogen from subdivisions (multiple houses) to either deeper zones of aquifers or to surface water

Option 6: Include summary of existing data in task C

### 2 Activities: The following activities are currently expected to occur in achieving the objectives of this task. The respondent can propose a different set of activities to achieve the objectives of the task. These tasks may overlap with tasks in task 4.4.C.

- 1) Summarize results of previous studies and recommend sampling parameters for field work (Task C)
- 2) Development of a Quality Assurance Project Plan (QAPP). The respondent will develop a quality assurance project plan (QAPP) patterned after EPA guidelines (<http://www.epa.gov/quality/qs-docs/g5-final.pdf>). In this document the offeror will plan and describe the approach, analytical methods, and quality control procedures guiding the project. The document will address questions such as:
  - a) What should be the starting point of the model (existing numerical or analytical models such as NHBA, CXTFIT,) or new development
  - b) What data will be used to evaluate the matching of physical processes (velocity, water flux, dispersion)?
  - c) How will aggregation of variable data (soil, flow, concentrations, reaction rates) in space and time occur?
  - d) What will be used to characterize deviations between model and measured data (length, area, mass of plume; flux at performance boundary; concentration at sampling points)
  - e) How will the accurate execution of the algorithms of the model be verified?
  - f) Which existing data sets are proposed to guide model development?
  - g) What will be acceptance criteria for model validation against data developed under task D?
  - h) How will the existence of bias due to simplification be assessed?

## FLORIDA ONSITE SEWAGE NITROGEN REDUCION STRATEGIES

- 3) Adaptation or Development of a model that achieves the objective and calibration with existing data sets
- 4) Validation of the model by comparison to datasets developed as part of task C
- 5) Summarize the progress of this task (draft and final), including recommendations for funding additional phases of the study with a final first progress report by January 1, 2009; May 1, 2009, and approximately semiannually thereafter in a report to the RRAC. The progress report will address the question if differences between sites exist.

### 3 Deliverables:

- 1) Two draft and final summary of existing data from previous studies and recommendation for sampling data for task C
  - 2) Two drafts and final QAPP, completed within three months of contract execution
  - 3) Two draft and final report on model development and comparison to existing data, completed by June 30, 2009
  - 4) Two draft and final report on validation of model with newly developed data
  - 5) Two draft and final progress reports
- 

#### 4.24 Required Documentation

The following documentation shall be submitted by respondents participating in this solicitation

- Proposal including sections outlined in sections 4.26 and 4.27 of this ITN
- Attachment VII – Required Certification Form
- Attachment VIII – Onsite Sewage Consultant Qualifications
- Attachment X – Additional Certifications
- Attachment XII – Reference Form

#### 4.25 Evaluation of Proposal

Each response will be evaluated and scored based on the criteria defined in Attachment \_\_\_\_ and Attachment \_\_\_\_\_. This is a two step process: with an evaluation of written proposals and an evaluation of oral presentations.

##### 4.25.1 Evaluation of Written Proposals

The Written Proposal Evaluation Criteria Worksheet (Attachment II) will be used by the selection review committee to designate the point value assigned to each proposal. The scores of each member of the selection review committee will be averaged with the scores of the other members to determine the final scoring. The selection review committee will develop points of common weakness or strength that respondents shall specifically address in their oral presentations (see 4.25.2).

In determining vendor responsibility, the agency may consider any information or evidence which comes to its attention and which reflects upon a vendor's capability to fully perform the contract requirements and/or the vendor's demonstration of the level of integrity and reliability which the agency determines to be required to assure performance of the contract.

At the department's discretion, respondents with the highest scores ("short-listed") may be invited to give oral presentations to a presentation evaluation committee. A respondent that scores highest in the evaluation of the approach to a specific task group (4.4.A&B, C, D) may also be invited. The order of presenters will be determined by lot. Participants will be invited by email and phone to give oral presentations. The invitation will include time and location of the presentation, the points of common weakness, and the scoring methodology used for the evaluation of presentations.

#### **4.25.2 Evaluation of Oral Presentations**

Comment [ER2]: need RRAC input

The selected respondents will present their proposal to the presentation evaluation committee, which is the department's Onsite Sewage Research Review and Advisory Committee (RRAC). The presentation evaluation committee members will use the Oral Presentation Evaluation Criteria Worksheet (Attachment III) to score and subsequently rank the presenters. The average rank of all evaluators will determine the final ranking of respondents. If the overall ranking and the ranking of approaches to specific task groups differ by half or more of the number of presenters for either of the two highest overall scorers, the presentation evaluation committee will recommend to the department whether or not to pursue separate contracts for tasks.

The scoring of proposals establishes a reference point from which to make negotiation decisions. It in no way implies that a contract will be awarded. The department reserves the right to award more than one contract resulting from evaluation of proposals submitted in response to this ITN, as well as the right to reject all proposals.

Negotiation will commence with the respondent who has the highest ranking as assigned by the presentation evaluation committee. Prior to the beginning of negotiations, the respondent shall have submitted a completed truth-in-negotiation certificate (Attachment X). If negotiations with this respondent are unsuccessful the respondent who ranks the next highest will be contacted, and negotiations will begin with that respondent and so on.

#### **4.26 Description of Approach to Performing Tasks**

The proposal shall include the following sections to provide insight into the respondent's approach to providing the services as specified in this solicitation. The respondent will address all areas of work within the Task List. The respondent's technical approach will demonstrate a thorough understanding and insight into this project.

##### **4.26.1 Introduction (2 page limit)**

Provide a brief narrative that demonstrates the respondent understands and its intention to meet the purpose and the needs of the project and of the project described by this ITN (3.1 and 3.2).

##### **4.26.2 Company Background (2 page limit)**

This section shall provide information on the historical background of the respondent and on the respondent's organization structures. This should include years in operation and years involved in services that are relevant to the services being requested in this ITN.

**4.26.3 Willingness to meet time and budget constraints (2 page limit)**

The respondent shall state the willingness to meet the time and budget constraints of the department. These include completion within the milestones provided in 4.4, and within a budget that is anticipated to be \$1,000,000 for all tasks through June 2008, and will not exceed \$5,000,000 over three years. Final budget constraints depend on availability of funding.

**4.26.4 Description of Approach (5 page limit)**

The respondent shall describe the approach proposed to achieve the purposes of the project. The description should address at least the following elements with consideration of the questions posed in 4.4.:

- 1) Tasks A and B. Prioritizing and field testing of technologies at actual home sites and cost documentation
- 2) Task C Evaluation of nitrogen reduction provided by soils and the shallow groundwater below and down gradient of various systems
- 3) Task D development of a simple model for predicting nitrogen fate and transport from onsite wastewater systems

DRAFT

**ATTACHMENT I**  
**ITN QUESTIONNAIRE**

- 1) **Introduction (2 page limit) (4.26.1)** How does the respondent understand the problem of nitrogen from onsite sewage treatment systems, including pretreatment approaches, environmental fate and transport and modeling?
- 2) **Company Background (2 page limit) (4.26.2)** Does the history of the respondent, including the number of years in operation relevant to the project, and the organizational structure of the respondent, provide assurance that respondent is capable to perform work?
- 3) **Willingness to meet time and budget constraints (4.26.3)** Is the respondent willing to complete the first phase of project by June 2009 and within a budget of \$1,000,000.00?
- 4) **Description of Approach to Performing Tasks Required by Section 4.4 (4.26.4) (5 page limit) How well does the respondent address the following issues:**
  - a) Tasks A and B Approach to prioritizing and field testing of technologies at actual home sites and cost documentation .
  - b) Task C Approach to evaluation of nitrogen reduction provided by soils and the shallow groundwater below and down gradient of various systems
  - c) Task D Approach to simplified modeling of nitrogen loads and attenuation
- 5) **Qualifications/ Organizational Capacity (Attachment VIII) (4.27.1)**
  - a) To what extent does the respondent or its proposed subcontractors have the qualifications and staff to perform the work? What personnel will provide the technical services; include the main non-administrative employees who will be responsible for the implementation of the contract resulting from this ITN. Are the qualifications of staff appropriate to the tasks assigned to them in regards to performance monitoring of onsite treatment systems, evaluation of nitrogen fate and transport in soil and shallow groundwater, and modeling of nitrogen fate and transport?
  - b) How similar are the projects that the respondent has performed to the one proposed in regard to the methodology that the respondent intends to use? How successful have these projects been (definitive results, guidance for decision making)?
  - c) What additional benefits can the respondent provide that have not been included so far, such as but not limited to, a history of projects in this area, partnering with other organizations, leveraging of funds?
- 6) **Description of Project and Workload Management (4 page limit) (4.27.2)** Does the organization of the project ensure that all necessary skills are present and managed effectively (refer to organization chart submitted as part of attachment VIII)? How will the management methods outlined allow to keep costs and schedule under control, maintain qualified staffing, track project progress, and assure the quality of gathered data and their management. What types of corrective actions are foreseen to address problems? Is there potential for conflicts of interests resulting from treatment systems eligible for assessment having been designed, installed, constructed or maintained by the respondent, a proposed subcontractor or related company, and how will this be addressed?
- 7) **Past Performance References (4.9)** How well do the reports of past performance reflect upon the respondent on average? (Past performance for three clients shall be rated according to Table I and averaged. Where past performance cannot be determined it shall be given a rating of 5)
- 8) **Subcontractor Documentation (4.27.2)** Are proposed subcontracts documented by a 1-page letter on subcontractor letterhead, identifying the solicitation number, project title, and prime contractor with whom the firm intends to subcontract? Failure to submit such a letter from an intended subcontractor shall result in the disallowance of the qualifications and experience of the subcontractor from consideration in the evaluations process.

FLORIDA ONSITE SEWAGE NITROGEN REDCUTION STRATEGIES

**ATTACHMENT II**  
**WRITTEN PROPOSAL EVALUATION CRITERIA WORKSHEET**

Responder Name: \_\_\_\_\_

Evaluator Name: \_\_\_\_\_ Date: \_\_\_\_\_

This sheet will be used by evaluators to assign scores to all written proposals. Evaluators will judge the presence and quality of each response in assigning a score (see attachment I for questions). The scores range from the highest score representing an excellent response to a zero representing no response. The higher the score the better the response.

ITN Questionnaire Question Number	Point Value	Points Awarded
1. Introduction (4.26.1)	0 – 4	
2. Company Background (4.26.2)	0 – 4	
3. Willingness to meet time and budget constraints (4.26.3)	0 – 8	
4. Description of Approach to Performing Tasks Required by Section 4.4 (4.26.4) (5 page limit) Tasks A and B. Prioritizing and field testing of technologies at actual home sites and cost documentation Task C. Evaluation of nitrogen reduction provided by soils and the shallow groundwater below and down gradient of various systems Task D. Development of a simple model for predicting nitrogen fate and transport from onsite wastewater systems	0 – 14  0 – 12  0 – 8	
5. Qualifications/ Organizational Capacity (Attachment VIII) (4.26.5) a) qualification of staff b) relevance of past projects c) additional benefits	0 – 8 0 – 8 0 – 8	
6. Description of Project and Workload Management (4.26.6) (4 page limit) a) organization and assignment of staff b) project and quality management c) potential for conflicts of interests	0 – 4 0 – 4 0 – 4	
7. Past Performance references (4.9) (average of three, according to table I.1)	0 – 14	
8. Subcontractor Documentation (5.6)	yes/no	
<b>Score without item 4</b>	66	
Total	<b>100</b>	
	<b>POSSIBLE</b>	<b>AWARDED</b>

**ATTACHMENT III**  
**ORAL PRESENTATION EVALUATION CRITERIA WORKSHEET**

Evaluator Name: \_\_\_\_\_

Date: \_\_\_\_\_

A sheet such as this will be used by evaluators to assign scores and subsequently ranks to all respondents for each element in the scope outlined in Section 4.26.4. Evaluators will judge the presence and quality of each proposal by assigning a score. The scores range from the highest score representing an excellent response to a zero representing no response. The higher the score the better the response. The score is then converted to a rank, with 1 being the best respondent.

<b>Presentation Evaluation Criterion</b>	<b>Possible Score</b>	<b>Proposal 1</b>	<b>Proposal 2</b>	<b>Proposal3</b>
Qualifications/ Organizational Capacity (4.26.5): How well does the respondent address issues such as -qualification of staff -relevance of past performance to this project	5			
Description of Approach to Performing Tasks Required by Section 4.4 (4.26.4) How well does the respondent address				
Tasks A and B. Prioritizing and field testing of technologies at actual home sites and cost documentation	5			
Task C Evaluation of nitrogen reduction provided by soils and the shallow groundwater below and down gradient of various systems	5			
Task D development of a simple model for predicting nitrogen fate and transport from onsite wastewater systems	5			
Project and Workload Management (4.26.6): How well does the respondent address issues such as -organization and assignment of staff -project and quality management -potential for conflicts of interests	5			
Willingness to meet time and budget constraints (4.26.3): How well does the respondent address the question if this project can be completed within twelve months and within budget.	5			
	<b>Possible</b>	<b>AWARDED</b>	<b>AWARDED</b>	<b>AWARDED</b>
<b>Overall Score</b>	<b>30</b>			
<b>Overall Rank (1=best, 3=worst)</b>	<b>Rank</b>			
<b>Task A+B Rank</b>				
<b>Task C Rank</b>				
<b>Task D Rank</b>				

Proposals with the same score will receive their average rank, e.g. two proposals tied for first and second place will both receive a ranking of 1.5



Department of Health  
Bureau of Onsite Sewage Programs  
Research Review and Advisory Committee

**Wednesday July 30, 2008**

**9:30 am - 3 pm**



# Agenda:

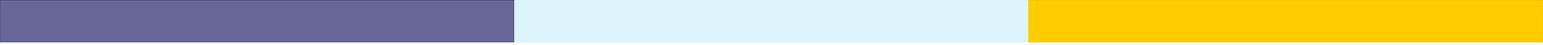
1. Introductions
2. Review Minutes 5/29/08 Meeting
3. Discuss Scope of Work for Onsite Sewage Nitrogen Reduction Strategies
4. Discuss Scope of Work for Statewide Inventory of Onsite Sewage Systems
5. Updates on Ongoing and Future Projects
6. Other business
7. Public comment
8. Closing Comments, Next Meeting, and Adjournment



# Introductions & Housekeeping

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- No new member/alternates
- SB 1318 signed by governor appointing local government representative knowledgeable in wastewater
- Letter sent to Florida Association of Counties and Florida League of Cities on June 24, 2008 requesting local government representative
- No official selection has been made at this time



# Review Minutes of Meeting 05/29/2008

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- See draft minutes



# FLORIDA ONSITE SEWAGE NITROGEN REDUCTION STRATEGIES STUDY:

- TECHNOLOGY EVALUATION,
- CHARACTERIZATION OF ENVIRONMENTAL FATE AND TRANSPORT,
- AN ASSESSMENT OF COSTS



# Roles in the Study

Gov't

- Funds study
- Receives reports and recommendations

DOH

- Contracts for study
- Manages contracts
- Administratively supports RRAC and study
- Reviews and accepts deliverables
- Provides report to Gov't

Study

RRAC

- Controls study
- Ranks proposals for contracts
- Reviews draft deliverables and provides comments
- RRAC will file a progress report , accept as complete the final report by contractors, and attach comments to final report

Contractors

- Contract with DOH
- Perform tasks
- Provide draft reports
- Address comments in final reports



# Goals

- Develop passive strategies for nitrogen reduction that complement use of conventional onsite sewage treatment and disposal systems
- Further develop cost-effective nitrogen reduction strategies
- Does this include?
  - a nitrogen discharge fee from conventional onsite sewage systems to fund upgrades
  - centralized management of onsite systems
  - density of onsite systems
  - only septic tanks and drainfields



# Process

- RRAC reviews draft Invitation to Negotiate (=request for proposal)
- DOH advertises ITN
- Respondents send proposals
- DOH short-lists
- RRAC ranks respondents
- DOH begins negotiations with top-ranked respondent(s)



## Task A: Preselection of technologies and prioritizing technology for testing

- Objectives: Evaluate and prioritize technologies for field testing, so that testing and further development can be phased in to occur as funding becomes available over the three year anticipated project period.



# Task A Activities

1. Assess if any updates are needed to the passive nitrogen literature review
2. Develop a classification scheme for technologies to allow comparisons:
  - a) Complements to conventional onsite systems: reduced authorized lot flow per acre, separate treatment (and disposal off site) of black water and/or urine (Plumbing code) , dosed vs. gravity drainfields, differing installation depths relative to vegetation and/or seasonal high water table, fill material modifications
  - b) Passive nitrogen removal system (one pump, and treatment media)
  - c) Active nitrogen removal system
3. Develop criteria to rank technology for order of testing, E.g.
  - a) Maturity (established in Florida, innovative in Florida, field/center testing elsewhere, research idea)
  - b) Pretreatment Effectiveness (<50%, 50-65%, 65%-80%, >80%)(examples)
4. Develop a priority list of technology testing
5. Develop information to complete innovative system applications
6. Summarize the progress of this task semiannually



## Task B: Field testing of technologies at actual home sites and cost documentation

- Objective: Obtain comparable data on costs and treatment effectiveness for a variety of technologies under field conditions. The emphasis will be on total nitrogen and other wastewater parameters (cBOD5, TSS, TP and fecal coliform) will be assessed in less detail.



# Task B Activities

1. Development of a Quality Assurance Project Plan (QAPP). The document will address questions such as:
  - a) Achievable cost savings by different management strategies (individual owner decides about technology and maintenance entity vs. area-wide decision about technology and maintenance entity vs. cluster systems with common technology and common maintenance entity)
2. Recruitment of homeowners for participation in the study
3. Procurement, permitting, and installation of new systems and/or, existing system evaluation and instrumentation of existing systems
4. Contingency fund
5. Monitoring of water quality, quantity, cost and energy use
6. Assessment of life-cycle costs and benefits and stakeholder satisfaction
7. technical guidance document for each technology
8. System replacement after sampling complete
9. Summarize the progress quarterly



## Task C: Evaluation of nitrogen reduction provided by soils and the shallow groundwater below and down gradient of various systems

- Objectives: To summarize existing and collect additional data to quantify nitrogen reduction provided by soils and shallow groundwater. The emphasis will be on total nitrogen, and other wastewater parameters (cBOD<sub>5</sub>, TSS, TP and fecal coliform) will be assessed in less detail for additional characterization. As part of this, this task will characterize seasonal variability of the respective processes, in particular in the Wekiva Study Area



# Task C Activities

1. Prioritize pretreatment/drainfield configuration/soil combinations for testing . E.g. differences between drip irrigation, pressure dosed and gravity-fed drainfields.
2. Development of a Quality Assurance Project Plan (QAPP)
  - a) soil and shallow groundwater processes at the same site or should the evaluations be separated (e.g. soil evaluations in lab or test center experiments; shallow groundwater in the field)?
  - b) mass balance of water, nitrogen and any other parameters; separate effects of processes, such as denitrification, nutrient uptake by plants, and dilution on nitrogen concentrations and loads?
  - c) Identifying sites
  - d) What is the loading (flow and concentration) coming from the last treatment receptacle?
  - e) groundwater velocity and direction, dispersion and recharge
  - f) importance of seasonal variability
3. Recruitment of site owners for participation in the study and site evaluations of existing systems
4. Instrumentation of sites, monitoring of groundwater quality, wastewater flow, and any other parameters
5. Report on each site, including monitoring results and mass balance estimates



# Task D: Development of a simple model for predicting nitrogen fate and transport from onsite wastewater systems

## Objectives:

- to adapt or develop and validate a model that can predict time-variable location and extent of the plume of an individual OSTDS, given information on factors such as sewage flow, recharge, drainfield type, soil, and groundwater flow velocity.
- To develop simplifications of the model that apply to certain combinations of conditions, e.g. to adapt or develop and validate a simple model that can predict location and extent of the average plume of an individual OSTDS, given information on factors such as sewage flow, recharge, drainfield type, soil, and groundwater flow velocity
- to adapt or develop a classification model for aerial nitrogen input and loading (lbs/acre or lbs/system or concentration at boundary) to groundwater from onsite systems depending on factors such as pretreatment, recharge, soil conditions and property size
  
- For loading estimates for watershed models
- To establish lot or pretreatment requirements given standards at a performance boundary
- As a starting point for load reductions
  
- If there is future funding , subsequently .
- Option 5: to adapt or develop and validate a model that describes the watershed-scale transport of nitrogen from subdivisions (multiple houses) to either deeper zones of aquifers or to surface water



# Task D Activities

1. Summarize results of previous studies and recommend sampling parameters for field work (Task C)
2. Development of a Quality Assurance Project Plan (QAPP)
  - a) What should be the starting point of the model (existing numerical or analytical models such as NHBA, CXTFIT,) or new development
  - b) What data will be used to evaluate the matching of physical processes (velocity, water flux, dispersion)?
  - c) How will aggregation of variable data (soil, flow, concentrations, reaction rates) in space and time occur?
  - d) What will be used to characterize deviations between model and measured data (length, area, mass of plume; flux at performance boundary; concentration at sampling points)
  - e) How will the accurate execution of the algorithms of the model be verified?
  - f) Which existing data sets are proposed to guide model development?
  - g) What will be acceptance criteria for model validation against data developed under task C?
  - h) How will the existence of bias due to simplification be assessed?
3. Adaptation or Development of a model that achieves the objective and calibration with existing data sets
4. Validation of the model by comparison to datasets developed as part of Task C
5. Summarize the progress of this task semiannually



# Evaluation of Written Proposals

- At the department's discretion, respondents with the highest scores ("short-listed") may be invited to give oral presentations to a presentation evaluation committee. A respondent that scores highest in the evaluation of the approach to a specific task (A, B, C, D) may also be invited. The order of presenters will be determined by lot.



# Evaluation of Oral Presentations

- The presentation evaluation committee members will use the Oral Presentation Evaluation Criteria Worksheet to score and subsequently rank the presenters.
- The average rank of all evaluators will determine the final ranking of respondents.
- The committee prefers one contract to result from this ITN.
- If the overall ranking and the ranking of approaches to specific tasks differ by half or more of the number of presenters for a task, the presentation evaluation committee will recommend to the department whether or not to pursue separate contracts for tasks.



# Evaluation Forms

- See packets



# Discussion on Next Steps



# Statewide Inventory of Onsite Sewage Treatment and Disposal Systems in Florida



# Goals

The bureau does not have a comprehensive inventory of the approximate 2.5-million onsite sewage systems under its jurisdiction. Such an inventory is necessary for the department to accurately estimate the impact of these systems on the environment. This inventory is a fundamental component of the bureau's future plans regarding improvement, maintenance, and management of these systems and expansion of ongoing research.



# Process

- RRAC reviews draft Invitation to Negotiate (=request for proposal)
- DOH advertises ITN
- Respondents send proposals
- DOH short-lists
- RRAC ranks respondents
- DOH begins negotiations with top-ranked respondent(s)



# Task A: Identify data sources

Objective:

Identify the developed properties that use sewage treatment systems under the jurisdiction of DOH



# Task A Activities

Respondent will answer the following questions:

- How best to identify developed properties? [Suggested data source: County Property Appraisers]
- How best to distinguish the method of wastewater disposal? [Suggested data source: Private and public utilities]
- How best to determine the minimal information about each onsite system (tank size, drainfield size, etc.)? [Suggested data sources: County Health Department records, septic tank pumper records, septic tank contractor voluntary inspection records]



# Task B: Gather data

Objective:

Collect data from the identified data sources



# Task B Activities

1. Make contact with data sources identified in Task A
2. At a minimum the following data fields are required: parcel identification number, property address, data source, latitude and longitude, lot/block/subdivision information, method of sewage disposal
3. At minimum, the following supplemental data fields are required when available: most current OSTDS-permit identifier, estimated flow, estimated tank size, drainfield size, lot size, house size, system type (conventional system, ATU, PBTS), date and result of last inspection, date of next required inspection



# Task C: Develop database structure

Objective:

Create a database structure to house the data



# Task C Activities

1. Utilize the data collected in Task B to develop a database structure. At a minimum the database shall include the required and supplemental fields listed in Task B
2. Implement a method to address shared systems and multiple systems on one parcel
3. Implement a method to receive regular updates from property records or the EHDB in order to remove active systems when they are abandoned and update records with the most current permit information



# Task D: Integration and extraction of data

Objective:

Combine all of the gathered data into a single source



# Task D Activities

1. Create a single list of all developed properties in the state [Suggestion: Use the developed properties listing from the Property Appraiser's offices]
2. Identify properties not served by wastewater systems served under DOH jurisdiction [Suggestion: Use utilities listing to remove properties]
3. Use supplemental data sources to populate supplemental fields when available



# Task E: Index and geo-code the data

Objective:

Provide a unique identifier to allow each property and each OSTDS to be individually mapped with a minimum success rate of 90%



# Task E Activities

1. Utilizing Accumail, or other DOH approved software assign geographic identifiers derived from address information in a format compatible with ArcMap in a projection compatible with DOH standards



# Task F: Final project database

Objective:

Final database including all combined records

Activities:

Populate the database with the inventory records



# Written and Oral Evaluations

Process similar to Nitrogen Study



# Ongoing projects



# Passive Nitrogen Removal Project

- Received final project report
- Project is now complete



# Optical Wastewater Tracers Study (old Remote Sensing of Optical Brighteners Study)

**Purpose:** Test the feasibility of detecting wastewater inputs to Florida surface waters using optical characteristics such as optical brighteners from laundry detergents as tracers

## **Progress:**

- QAPP final approved
- Mote Marine contract for specialized lab work near execution
- Sampling currently being done



# Manatee Springs, Performance of Onsite Systems Phase II Karst Study

**Purpose:** Test the difference in water quality after nutrient reducing systems are installed in a Karst area

**Progress:**

- Working on designs for nutrient reducing systems
- Working on new agreement with FSU to perform sampling



# Taylor County Source Tracking

**Purpose:** Evaluation of source hypotheses for pathogen indicators at beaches in Taylor County

**Progress:**

- Final project report for grant submitted to EPA on July 1<sup>st</sup>
- Tri-fold brochure completed and is ready for distribution



# Monroe County PBTS Assessment: Next Phase of Sampling in the Keys

**Purpose:** Evaluate effectiveness of Performance Based Treatment Systems in the Keys

**Progress:**

- Developing criteria for next phase:
  - Expand diurnal variability assessment
    - Additional ATUs and PBTS for single family residences
    - PBTS for systems serving multiple houses (e.g. mobile home park)
  - Validate field sampling protocol by sampling during inspections



# Upcoming projects



# 319 Project on Performance and Management of Advanced Onsite Systems

**Purpose:** Assess water quality protection by advanced onsite sewage treatment and disposal systems

**Progress:**

- Waiting on signed grant agreement from DEP. Once received it will be executed and work can begin. Anticipate receipt of signed agreement within the month.
- Development of task to select vendor to create a database of all advanced systems is almost complete and will be advertised soon after signed agreement is received.



# Town of Suwannee Study: DEP Coastal Management Program Grant

**Purpose:** Grant to resample the Town of Suwannee to see what effects sewerage has had on water quality

## **Progress:**

- Waiting on signed grant agreement from DEP. Once received it will be executed and provider can be selected. Anticipate receipt of signed agreement within the month.
- ITN scope was presented at last meeting and actual ITN document is anticipated to begin internal routing within next two weeks.



# Restoration of the University of South Florida (USF) Lysimeter Station

**Purpose:** Restore station to functional state to be available for testing of future projects

**Progress:**

- Memorandum of Agreement sent to USF on June 17th, waiting for response back



# Phase II of the Florida Passive Nitrogen Removal Project

**Purpose:** Build on the results of the Phase I study to go from a lab scale project to a prototype scale project

**Progress:**

- Discussion on whether this research priority could be accomplished under special appropriation 1682



# Wekiva Onsite Sewage Treatment and Disposal System (OSTDS) Seasonal Variability Assessment

**Purpose:** Investigate if there is a seasonal variability of nitrogen concentrations from OSTDS in the Wekiva Study Area of Central Florida

**Progress:**

- Discussion on whether this research priority could be accomplished under special appropriation 1682



# Alternative Drainfield Product Assessment

**Purpose:** Compare the functioning of alternative drainfield materials to standard aggregate

**Progress:**

- Discussion on whether this research priority could be done as an enhancement to the study being done under special appropriation 1682, or whether this project will need to be postponed until the next budget cycle



# Long-term deformation of tanks of different materials

**Purpose:** Compare the functioning of alternative drainfield materials to standard aggregate

**Progress:**

- In scoping stages. Propose two stages:
  - Phase I: literature review on plastic tanks with assessment protocol to include different tank materials (fiberglass, concrete)
  - Phase II: field sampling numerous tanks of different materials based on the Phase I protocol



# Other Business



# Public Comment



# Closing Comments, Next Meeting, and Adjournment

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Important dates:

TRAP meeting:           **Possibly end of August or beginning of September**

Next RRAC issues:

- Select provider for Suwannee Study, Nitrogen Study, and Inventory Study
- Currently ITN's are written to have oral presentations done on October 8, 2008

**Possible next RRAC meeting:           October 8, 2008 or sooner???**

# **Alternative Method To Remove Nitrate And Phosphorus From Waste Water Based On A Swedish Invention And Used In Denmark, Germany, Holland, Austria, New Zealand, Australia, China...**

**Presented by Dominique Buhot / Master Septic Tank Contractor at Green's Environmental Services**

## References

- Bibbi Söderberg idea and design.
- Swedish Department of Environment.
- BB Innovation&Co Dubbletten design.([www.dubbletten.nu](http://www.dubbletten.nu))
- Wost Man Ecology AB.([www.wost-man-ecology.se](http://www.wost-man-ecology.se))
- EAWAG, Swiss Federal Institut for Environmental science and Technology/ Novaquatis

# What Do We Know About Sewage and Nutrients?

	URINE	FECES	<b>OTHER SOURCES</b> Laundry, Shower, dishwasher,kitchen wastes
<b>NITROGEN</b>	<b>80% to 90%</b>	<b>10% to 20%</b>	<b>+/- 5%</b>
<b>PHOSPHORUS</b>	<b>45% to 65%</b>	<b>35% to 50%</b>	<b>+/- 5%</b>
<b>POTASSIUM</b>	<b>60% to 80%</b>	<b>10% to 20%</b>	

# What Do We Know About Urine ?

Also Called Yellow Water

- Human being discharge .33 gallons/ 1.25 liters of urine per day. (Gutt Tornsens 1978 study system design master class part II and personal testing).
- A family of four people discharge about 1.33 gallons of urine per day/ 5 liters per day.
- A family of three people discharge about 1 gallon of urine per day/ 3.76 liters per day.
- Urine represents less than 1% of our total sewage.



# Three different styles of urine diverting toilet/NoMix toilet



# Study By NOVAQUATIS

## A Branch of EAWAG

Swiss Federal Institute Of Aquatic Science And Technology

### 4 Projects From 1997 to 2006

- Private apartment  
4 apartments with NoMix toilet
- Vocational college 2004/2006  
university of applied science of  
northwest Switzerland  
3 NoMix toilets, 6 waterless urinal
- EAWAG office building  
Government building
- Basel Landschaft cantonal library  
with 200 000 visitors per year. All  
toilets are NoMix/urine separator

NoMix toilet is a urine diverting toilet

# Acceptance From the Public

1750 persons surveyed:

- Well accepted and highly favorable
- 79% call it a great idea.
- 84% would move in residence with NoMix toilet.
- 72% would eat food fertilized with urine provided that health risk are excluded.

Public is prepared to give this unconventional technology a chance provided cost is affordable, meets modern sanitary and safety standards and problem occurred during testing are fixed.

# Problem Encountered

- Regular drain line blockage due to crystallization build up ( salt precipitation deposit) of waste. Fixed with bigger drain line and dilution. Advice 2" drain line and .15 liter/flush for dilution.
- Smell occurring with non diluted/waterless toilet. Fixed with dilution flushing toilet with water. .1 to .2 liter per flush. Better result with rain water (different mineralogy).
- Men may need to sit to urinate unless can aim properly.

Problems have been fixed with last generation of toilet manufactured in July 2008.

# TKN/ Nitrogen Input and Output With Urine Separator Toilet

	Input	80% reduction	Output (80% reduction at source + 30% denitrification in drainfield and soil)
Per Residence	29 Lbs/Yr.	-23 Lbs/Yr.	4.2 Lbs/Yr
Per person	10 Lbs/Yr.	-8 Lbs/Yr.	1.4 Lbs/Yr.

Calculation based on the Mactec/DOH Phase I study

# Disposal Solution For Yellow Water Tank

Mini passive system with denitrification for 2 gallons per day high concentration of TKN.

Mini performance base system.

Evaporation with coils/heating element with power supplied by 2 solar panels 5 hours of sunlight to evaporate 4 gallons at 250°F.  
Need to study redeposition of evaporated material.

Flower/plant bed with liner capable of absorbing 2 gallons of yellow water/day and resist pH 9.

Discharge yellow water inside 1500 gallons and collect once/year at time of inspection. Install auto dial with alarm system.

# Disposal Solution For Yellow Water Tank with Holding/Storage Tank

- 1500 gallons at 1.5 gallons/day gives 1000 days of storage.
- Treated by treatment plant (Need to check if facility can receive this form of high nutrients waste).
- Can recycle waste as fertilizer (phosphate, nitrate, potassium).
- No more phosphate mine in America in next 20/30 years  
reserve are in hostile countries but can be provided in recycling  
yellow water.

# Cost of Urine Separator

Standard toilet    \$ 200.00 Urine Separator    \$1000.00	Difference +\$ 800.00 per toilet X2 = \$ 1,600.00
Installation of 2 inches pvc schedule 40 at construction time / plumbing cost	Difference        + \$ 500.00
Installation of 1500 gallons holding tank with riser and concrete round cover resistant to pH 9	Difference        + \$2,500.00

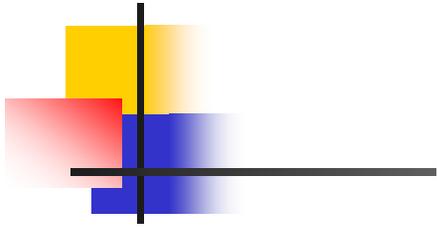
**Total**

**\$ 4.600.00**



# Conclusion

- Very cost effective technology for nutrient removal.
- No technology can separate nitrate and phosphorus as efficiently and as cheaply as the urine diverting toilet.

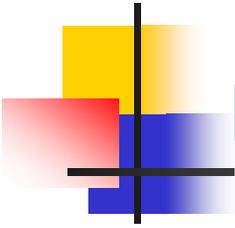


Nitrogen Removal

## FLDOH Research Review & Advisory Committee

July 30, 2008

**Pio Lombardo, P.E.**  
**Lombardo Associates, Inc.**  
**Newton, MA 02467**  
**Pio@LombardoAssociates.com**  
**www.LombardoAssociates.com**



## Wastewater Nitrogen Removal Treatment System



Best performance in the wastewater industry.

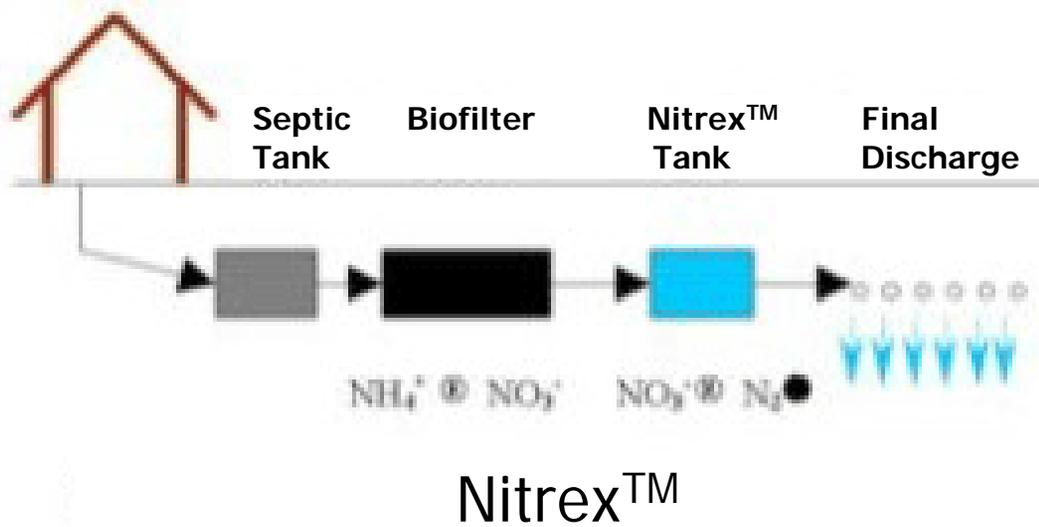
Cost savings of 25-40%.

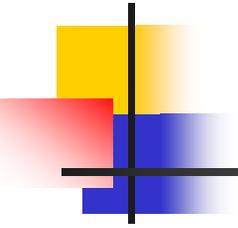
- ◆ Performance comparable to the most sophisticated centralized wastewater treatment system, with TN < 3 - 4 mg/l
- ◆ Performance comparable to the limits of the most sophisticated technology – Best Available Technology (BAT)
- ◆ Passive, simple operational system

- ✓ **Only FLDoH and LAI Approved Recirculating or Single Pass Media** (only in areas with sufficient alkalinity)
- Technologies Used for small flow applications**
- ✓ **Pre-Treatment Technology Choice dictated by Site Conditions, Cost and Required Full Nitrification Capabilities**

# Omni-Nitrex™ Service Offering

## Single Family Residential Application

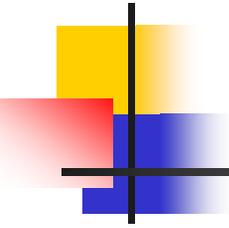




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*Single Family Residential Applications*

*Cluster System Applications*



# Nitrex™ Service Offering

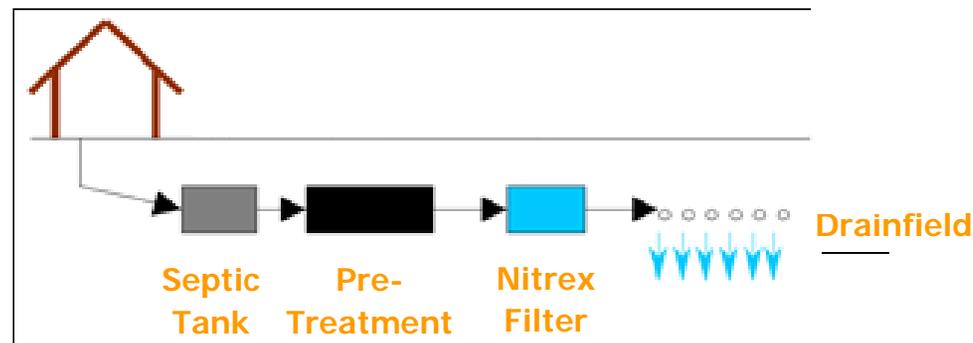
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## *Cluster Wastewater System Applications*

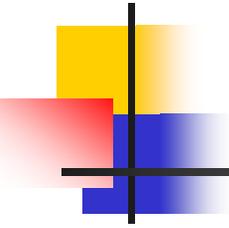
- Custom Site/Project Specific Design
- Fully Integrated, Design – Build – Operate Option
- Performance Warranty
- Installed Fixed Price Guarantee Option
- P.E. Stamped & Certified

# Nitrex™ for Nitrogen Removal - Science

- Developed at University of Waterloo – internationally acclaimed Professors John Cherry & William Robertson
- Comprised of pretreatment + Nitrex™ filter:



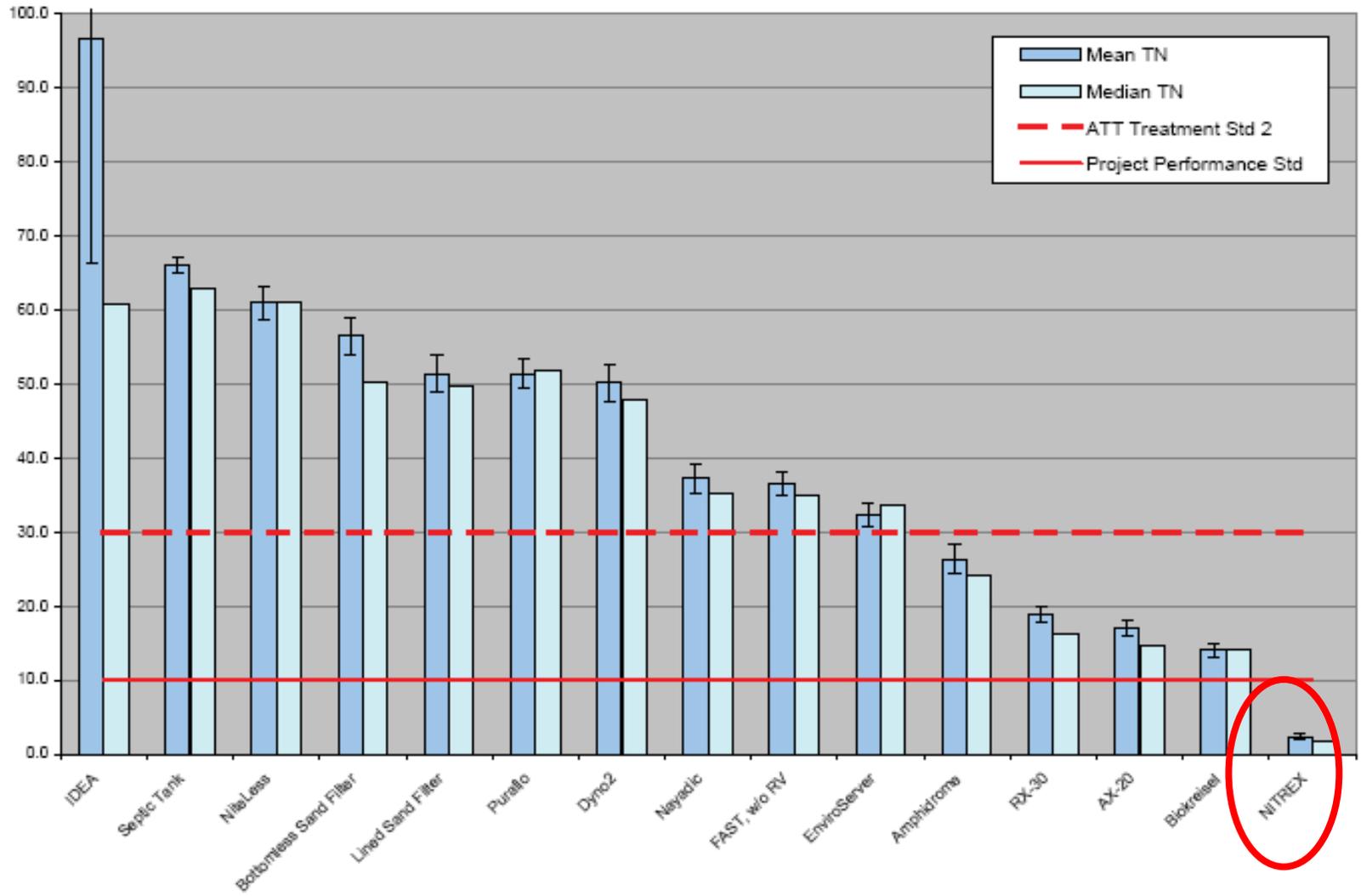
- Nitrex™ filter contains organic material that acts as long-term carbon source for denitrification



# Nitrex™ Demonstration Projects

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- **LaPine Oregon** National Decentralized Wastewater Treatment and Disposal Demonstration Project funded by EPA (2000-2002)
- **Montana** Department of Natural Resources evaluation of three on-site denitrification systems in Polson, MT (1999-2002)
- **Massachusetts Septic System Test Center, Otis Air Force Base Cape Cod, MA (2001 - 2005)**
- University of Rhode Island
- Seven additional installations in Canada for individual and cluster wastewater systems, along with golf course and farmland runoff treatment systems (since 1997)



# Nitrex™ LaPine, Oregon Results

Best nitrogen  
removal system  
out of 15  
technologies  
tested

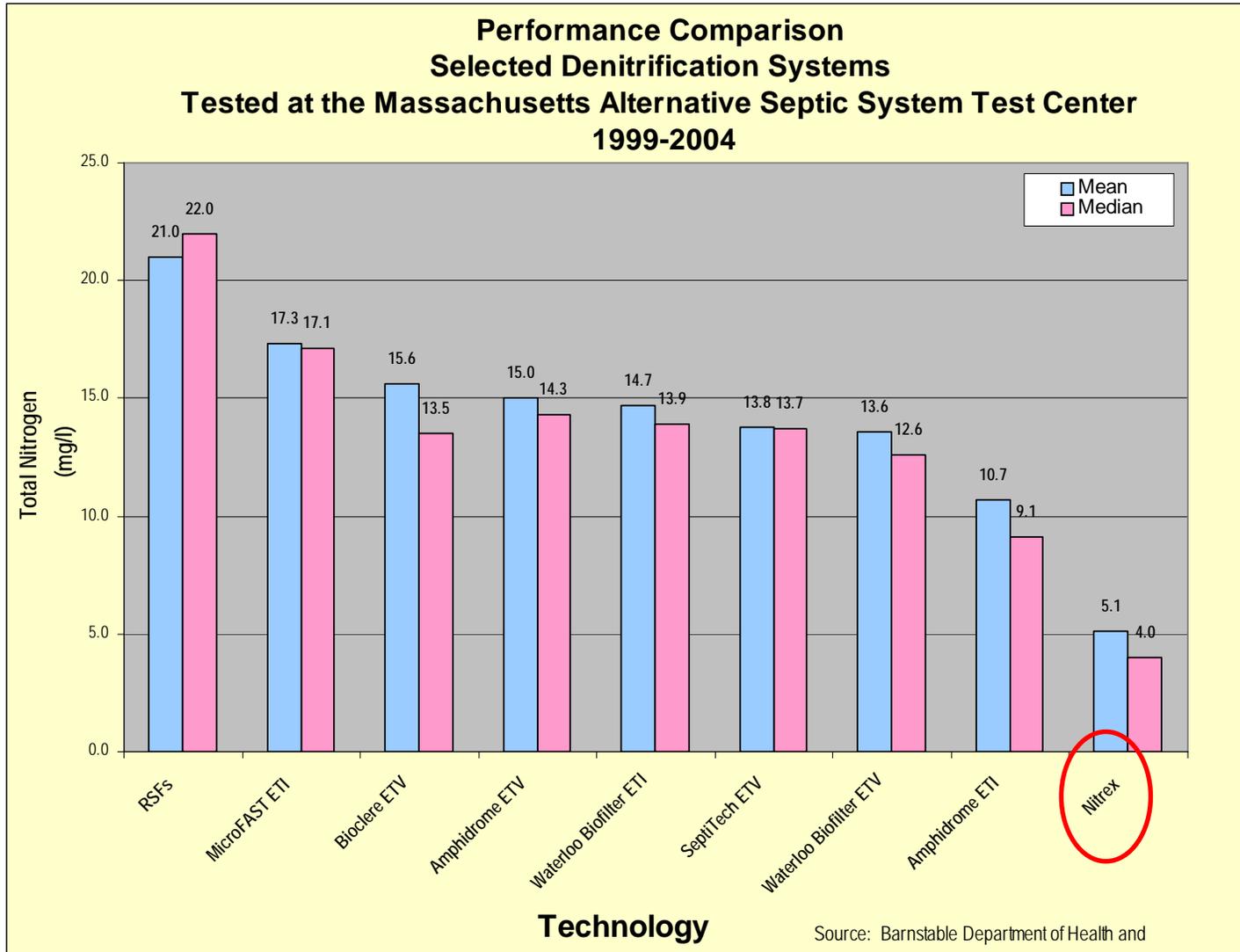


Technology Total Nitrogen Effluent Quality (mg/L)			
	Technology	Mean Effluent TN	Standard Deviation
1	NITREX	2.4	0.3
2	Biokreisel	14.0	0.9
3	AX-20	17.0	1.1
4	RX-30	18.8	1.1
5	Amphidrome	26.3	2.0
6	EnviroServer	32.3	1.5
7	FAST, w/o RV	36.4	1.6
8	Nayadic	37.2	1.9
9	Dyno2	50.2	2.5
10	Puraflo	51.4	2.0
11	Lined Sand Filter	51.4	2.6
12	Bottomless Sand Filter	56.5	2.5
13	NiteLess	61.0	2.3
14	Septic Tank	66.1	1.1
15	IDEA	96.8	30.5

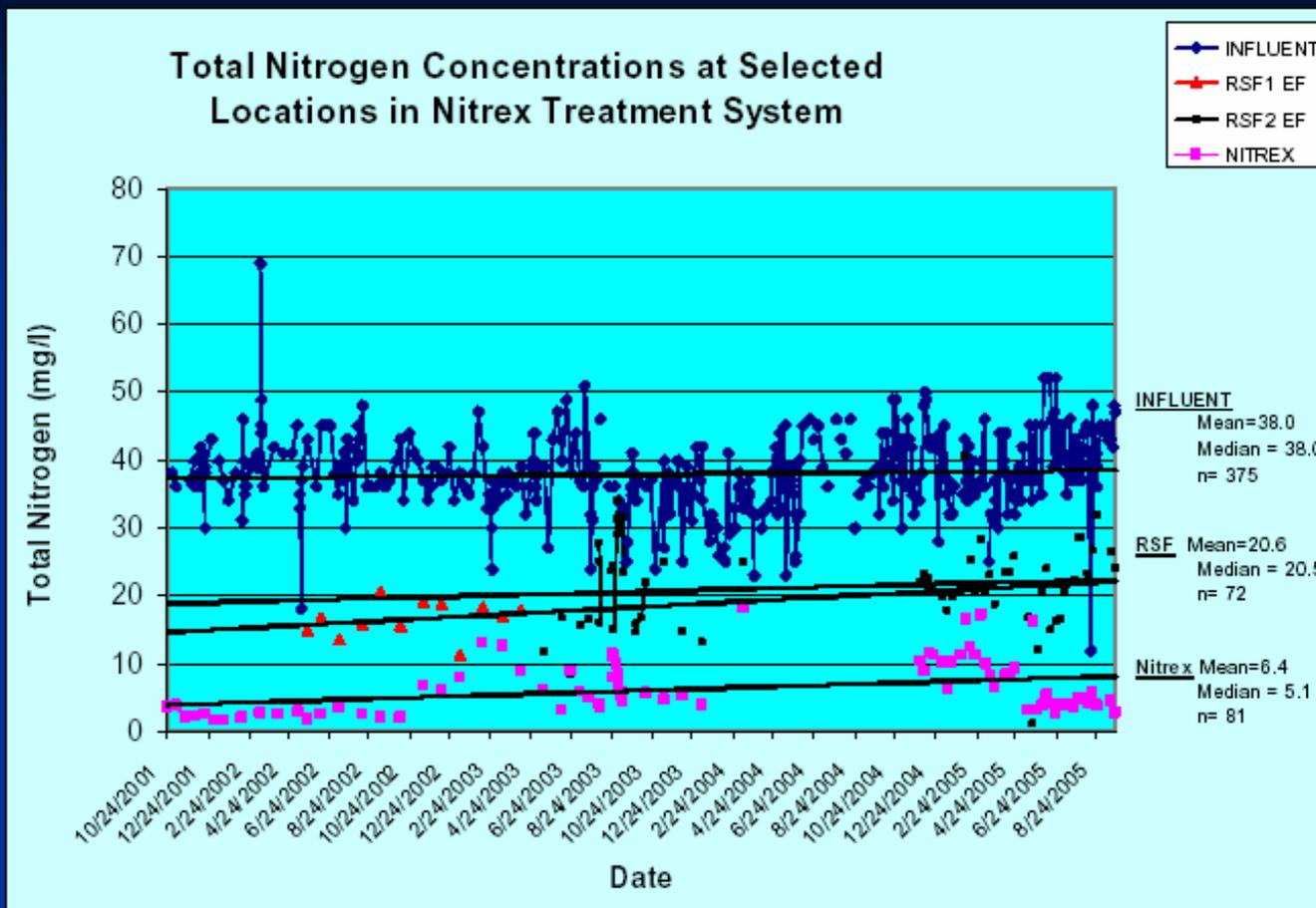
# Nitrex™ MA Test Center Results



# Nitrex™ MA Test Center Results

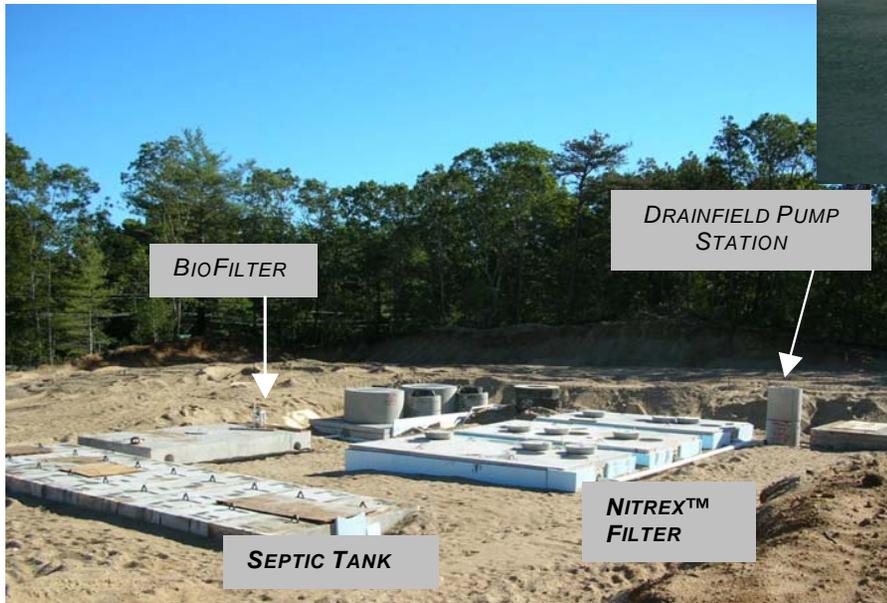
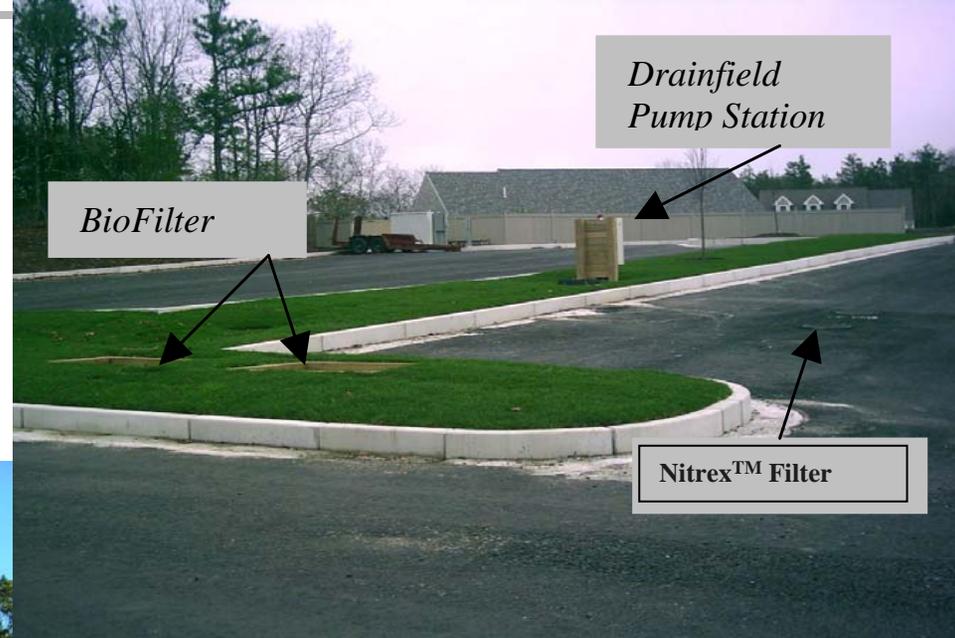


# Nitrex™ MA Test Center Results



# Residential & Light Commercial Nitrex™ Wastewater System

- Mashpee, MA
  - 6,000 gpd



Mashpee, MA Performance Summary

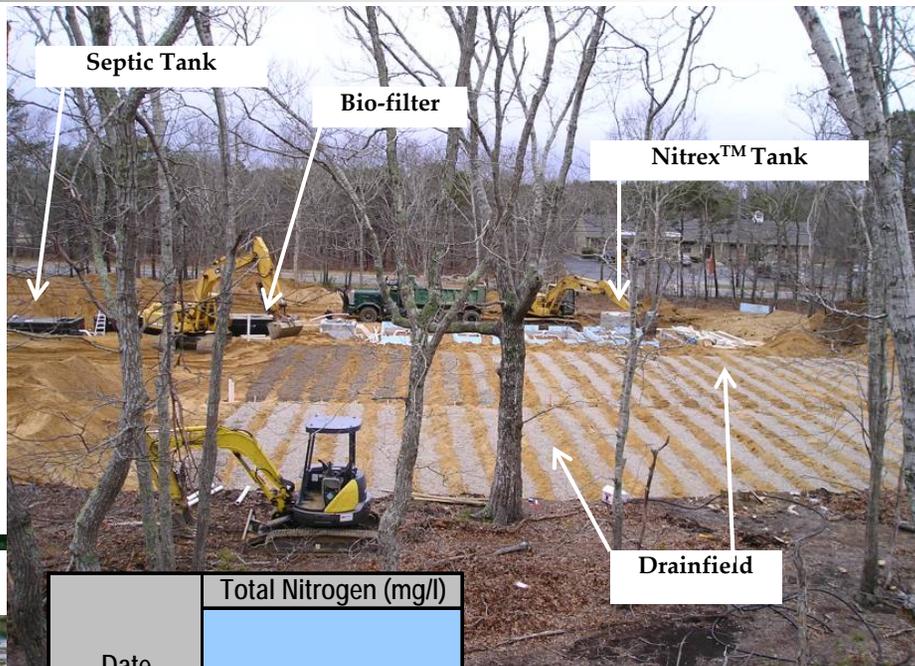
Date	Septic Tank Effluent Total Nitrogen (mg/l)	Nitrex™ Tank Effluent
		Total Nitrogen (mg/l)
10-May-06	57.6	5
16-Jun-06	58	<7.0 <sup>(1)</sup>
26-Jul-06	48.6	2.6
17-Aug-06	75.6	< 3.0
14-Sep-06	67.28	2.15
17-Oct-06	62.29	1.6
20-Nov-06	47	2.08
12-Dec-06	51	4.1
30-Jan-07	63	3.26
28-Feb-07	14 <sup>(2)</sup>	6.27
3-Apr-07	39	2.6
26-Apr-07	44	2.64
16-May-07	43	3.55
26-Jun-07	70	3.9
25-Jul-07	73.6	6.05 <sup>(1)</sup>
25-Jul-07	29	2.66
24-Sep-07	45	2.5
22-Oct-07	47	2.28
24-Jan-08	40	4.92
28-Apr-08	64	3.48
<b>Period of Record Average</b>	<b>51.9</b>	<b>3.58</b>
<b>12 Month Rolling Average</b>	<b>47.6</b>	<b>3.68</b>

(1) Due to insufficient nitrification of pretreatment system.

(2) High pH due to inappropriate wastewater discharge caused low total nitrogen.

# Cape Cod Residential Development, Eastham, MA

■ 10,000 gpd



Date	Total Nitrogen (mg/l)
	Nitrex™ Effluent
10/2/2007	3.0
10/23/2007	1.7
11/14/2007*	1.6
11/27/2007	1.6
12/12/2007	1.6
12/27/2007	3.7
1/31/2008	1.7
3/27/2008	5.5
4/29/2008	1.8
5/28/2008	1.8
Average	2.4

# Commercial Nitrex™ Wastewater System

- Chincoteague, VA
  - 3,900 gpd



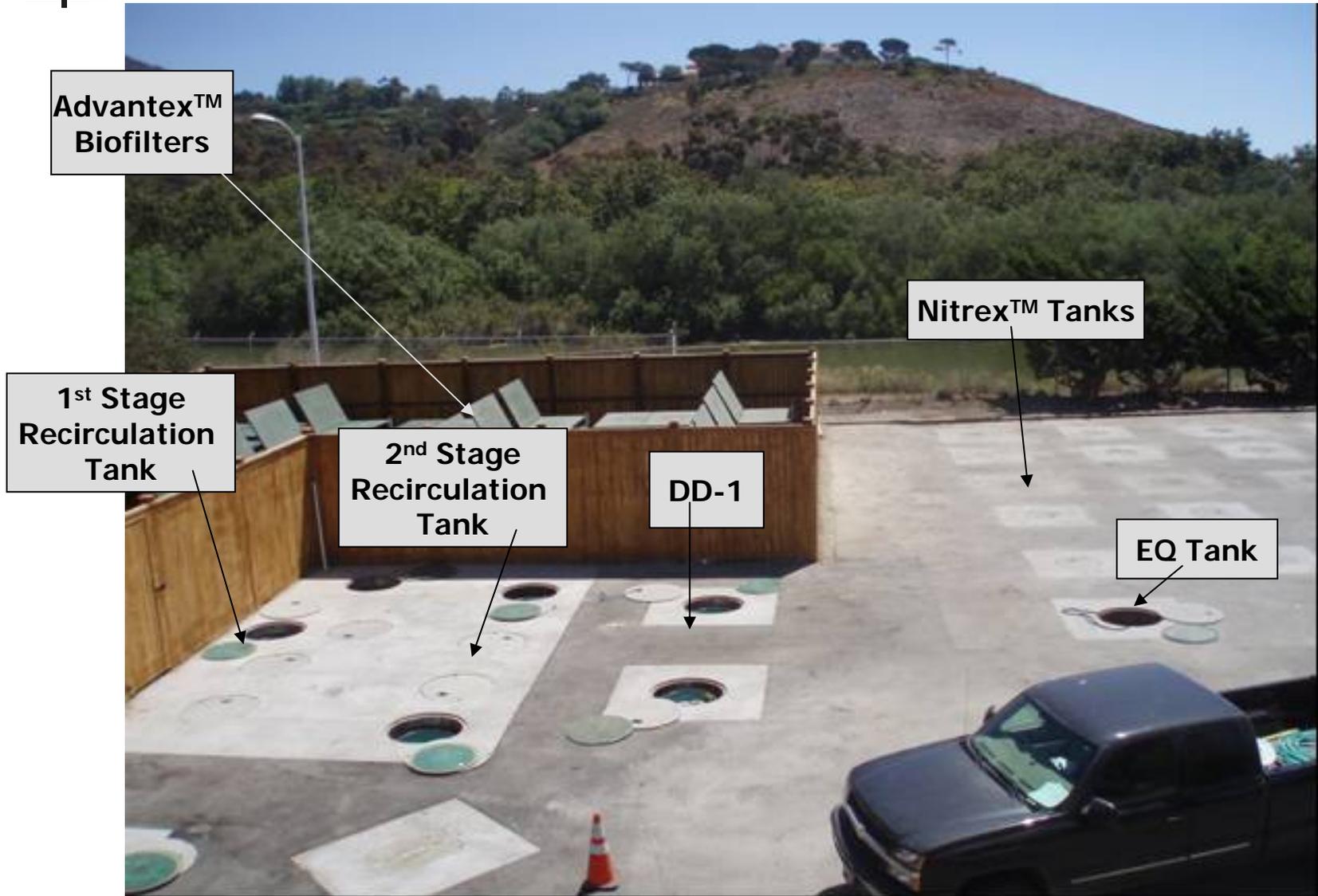
Date	Nitrex™ Effluent
	Total Nitrogen
	mg/l
Detection	
5/24/2007	3.17
6/6/2007	1.10
6/19/2007	0.96
7/11/2007	0.20
9/26/2007	2.05

# Shopping Center (85% restaurants)

- Malibu Creek Plaza, Malibu, CA
  - 16,000 gpd



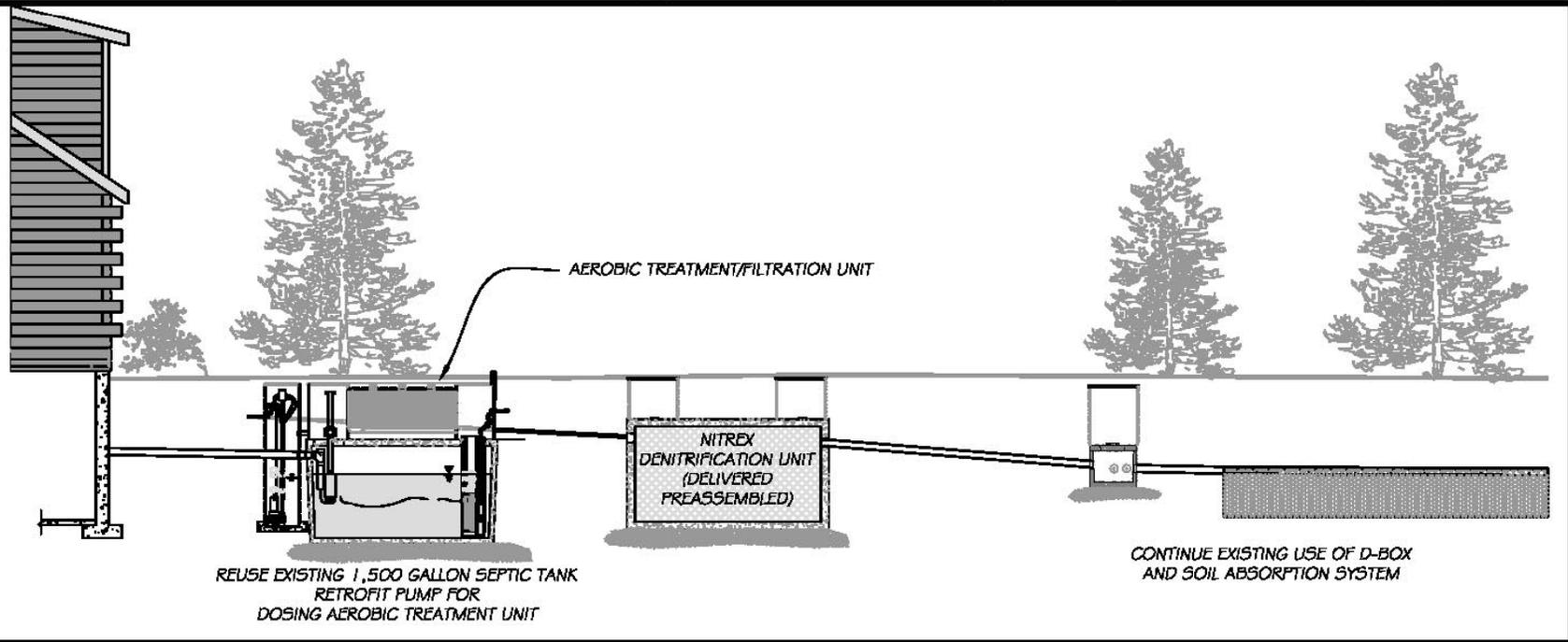
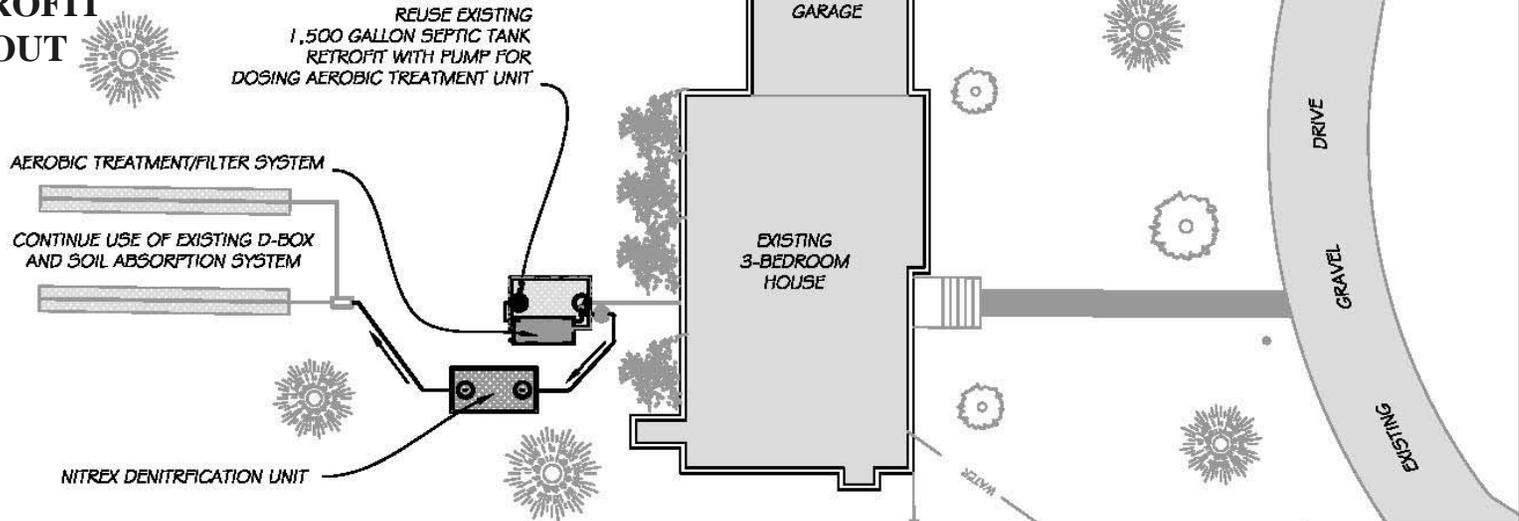
# Malibu Creek Plaza, Malibu, CA



# Malibu Creek Plaza

	Constituent	BOD <sub>5</sub>	Total Suspended Solids	Turbidity	Oil & Grease	TDS	Total Nitrogen	Fecal Coliform	Enterococcus	Total Coliform	Flow @ Sampling Date	Average Monthly Flow
	Units	mg/l	mg/l	NTU	mg/l	mg/l	mg/l	MPN/100 ml	MPN/100 ml	MPN/100 ml	gpd	gpd
Malibu Creek Plaza Effluent Standards	Average	30	30	10.0	-	-	-	-	24			
	Max	45	45	15.0	15	2,000	10.00	200	104			
Title 22 Unrestricted Reuse Requirements	Average			2.0						2.2		
	Max			10.0						23		
<i>Aug. 2007</i>		71	23	25.55	<5	940	4.24				12,755	15,244
<i>Sept. 2007</i>		<6	5	1.76	<5	590	4.75	<2	<1	<2	10,938	11,778
<i>Oct. 2007</i>		<7	5	1.08	<5	572	3.94	<2	<1	<2	13,011	11,950
<i>Nov. 2007</i>		<5	<5	0.85	<5	526	3.23				12,475	11,692
<i>Dec. 2007</i>		12	9	1.80	<5	688	3.57	2	<1		10,834	9,519
<i>Jan. 2008</i>		6	<5	1.10	<5	604	4.73	<2	<1		9,982	9,725
<i>Feb. 2008</i>		<5	<5	5.40	<5	684	5.61	<2	<1	<2	10,133	9,893
<i>Mar. 2008</i>		<5	<5	1.90	<5	720	6.72	<2	<1	<2	8,729	9,808
<i>Apr. 2008</i>		<5	7	2.60	<5	660	9.17		<1		9,605	10,238
<i>May 2008</i>		<5	<5	1.80	<5	748	7.88		<1		8,355	9,475
<i>June 2008</i>		<5	8	1.40	<5	776			11			
Average from 9/1/07 on		<6.2	<6	1.97	<5	657	5.51	<2	<2.25	<2	10,451	10,936

# RETROFIT LAYOUT



# Residential Installations - Maryland



# Residential Nitrex™ Wastewater System

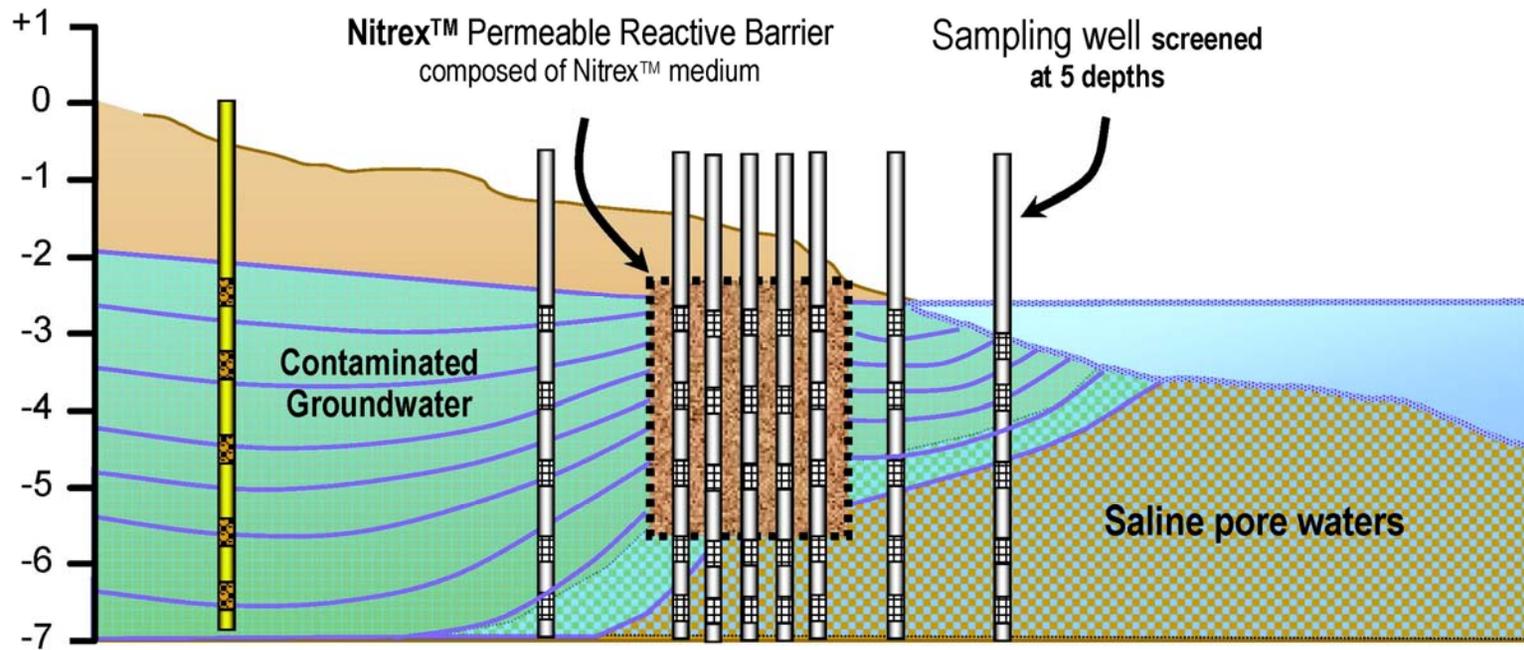


# Residential Nitrex™ Wastewater System

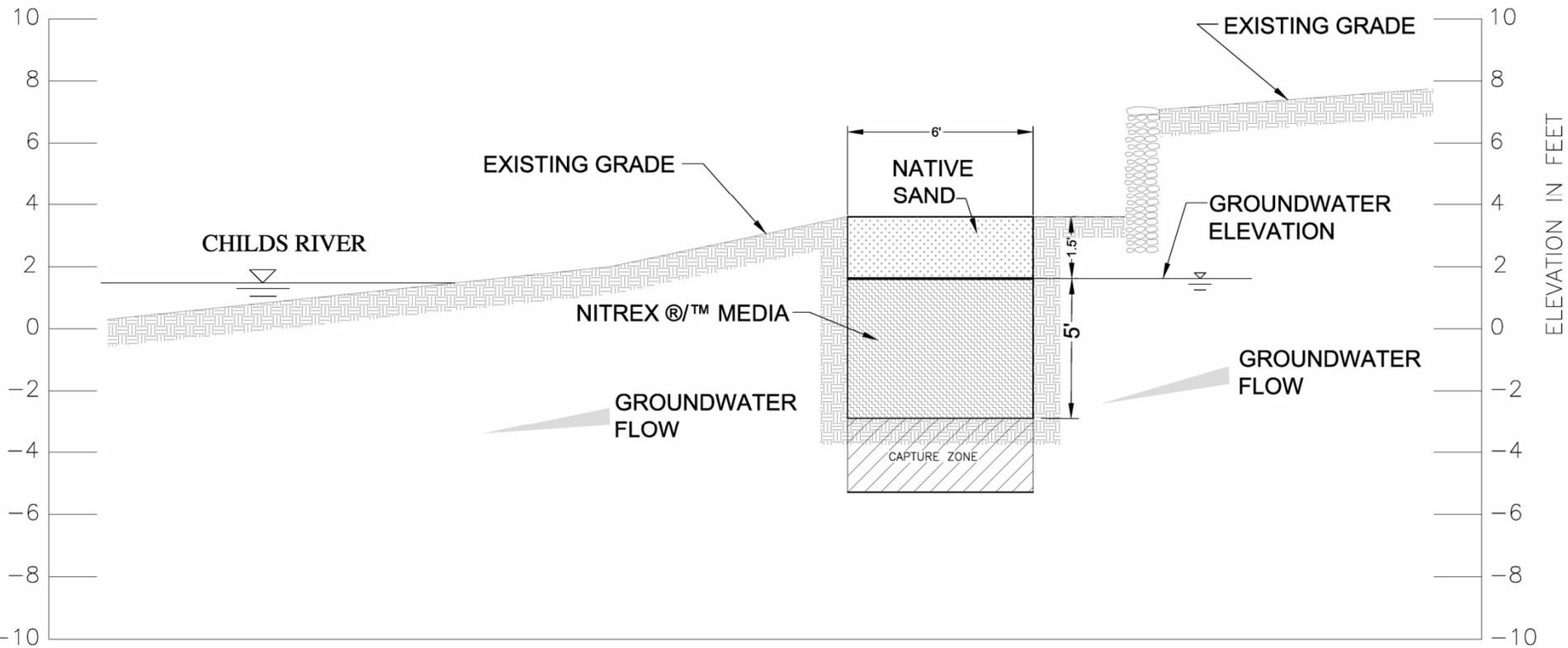
- Harvard, MA
  - 660 gpd

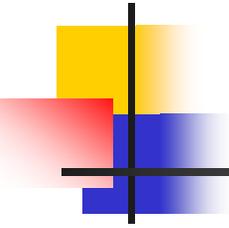


# Nitrex™ PRB for Groundwater Treatment



# Nitrex™ PRB for Groundwater Treatment





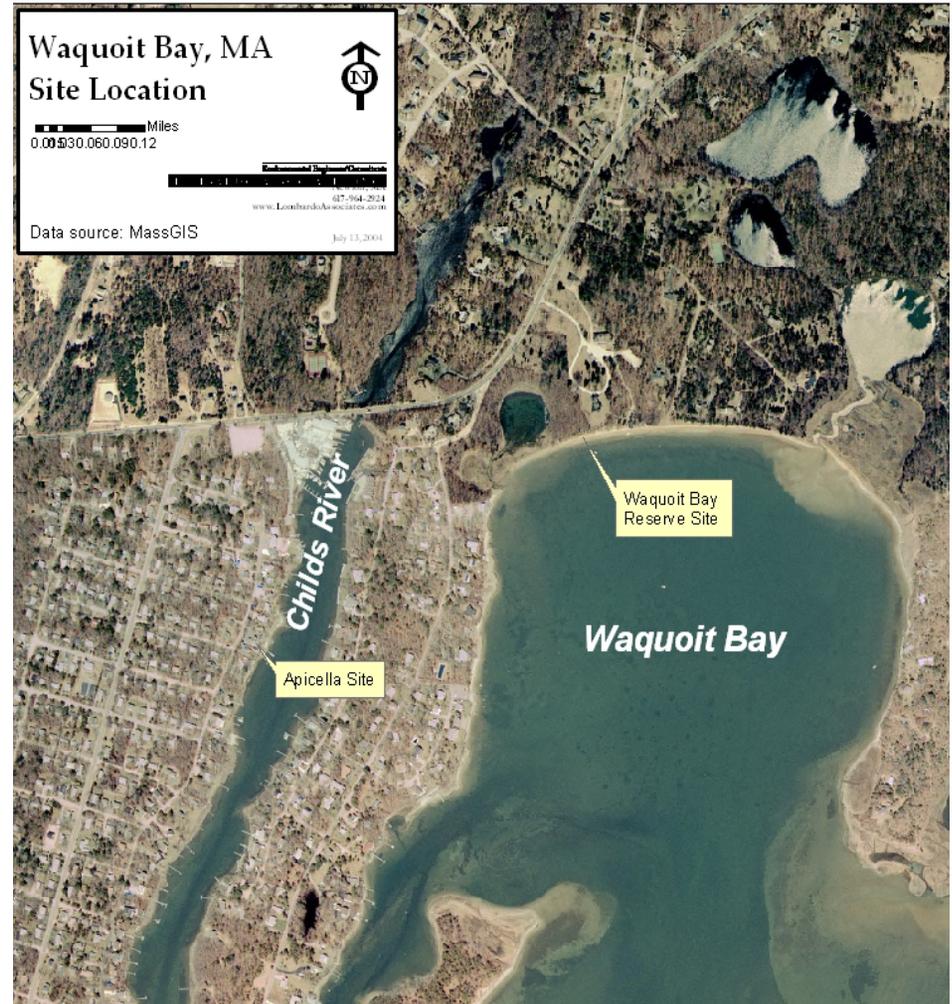
# Nitrex™ PRB Groundwater Treatment

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- Treats all sources of N
- Immediate impact on water quality
- Cost minimization
- Localized recharge to aquifers

# PRB Demonstration Project

- 2 PRBs installed in July 2005
- Evaluated by Woods Hole Marine Biological Laboratory



# Child's River PRB

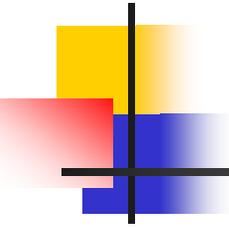
- Untreated GW TN ~3 mg/L
- Treated GW TN <0.1 mg/L



# Waquoit Bay PRB

- Untreated GW TN ~1.5-2.5 mg/L
- Treated GW TN <0.1 mg/L





# Nitrex™ Costs

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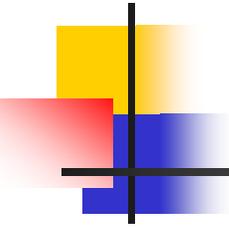
- Nitrex™ Unit only - single family home \$4,000 - \$5,000 installed, need to add septic tank, pretreatment system and drainfield cost for complete system

- **Total** System costs for residential applications:

New System	\$18,000 - \$24,000
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Retrofit	\$14,000 - \$18,000
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- Large systems sized based upon:
  - Flow
  - Total N to be removed – i.e. from 40 to 5 ppm of N
- Comparison with Membrane Bioreactors
  - Generally 25+ % savings on capital costs
  - 40+ % savings on annual O&M costs



# Cluster Nitrex™ Treatment Systems Costs (excludes ST & Drainfield)

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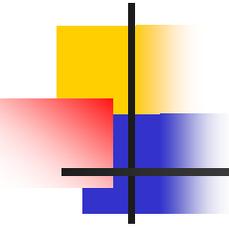
- Design, Build & Start-Up \$32 – 38/gpd  
("typical")

Low O&M

Site Visits

Sampling

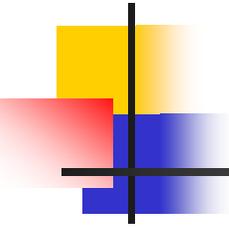
Long term warranty



# Nitrex™ Summary

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- Numerous installations have shown Nitrex™ filter systems to achieve < 3 - 5 mg TN/l
- Little maintenance required
- Long life – expected at 50 +/- years



# Questions / Discussion

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**Environmental Engineers/Consultants**

**LOMBARDO ASSOCIATES, INC.**

49 Edge Hill Road

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Newton, Massachusetts 02467

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(617) 964-2924

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Portable: (617) 529-4191

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Fax: (617) 332-5477

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E-mail: [pio@LombardoAssociates.com](mailto:pio@LombardoAssociates.com)

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## Research Review and Advisory Committee for the Bureau of Onsite Sewage Programs

Approved Minutes of the Meeting held at the Orlando Airport Marriott, Orlando, FL

July 30, 2008

Approved by RRAC October 9, 2008

### In attendance:

- **Committee Membership and Alternates:** Sam Averett (alternate, Septic Tank Industry); David C. Carter (Chairman, member, Home Building Industry); Paul Davis (member, DOH-Environmental Health); Anthony Gaudio (member, Septic Tank Industry); Marc Hawes (alternate, Home Building Industry); Bill Melton (member, Consumer); Jim Peters (alternate, Professional Engineer); Eanix Poole (alternate, Consumer); Jim Rashley (alternate, DOH-Environmental Health); Patti Sanzone (alternate, Environmental Interest Group); John Schert (member, State University System); Clay Tappan (member, Professional Engineer); Pam Tucker (member, Real Estate Profession); and Ellen Vause (alternate, Septic Tank Industry)
- **Not represented:** Restaurant Industry
- **Visitors:** Damann Anderson (Hazen & Sawyer); Rick Baird (Orange County Environmental Protection Division); Quentin Beitel (Markham Woods Association); Alice Berkley (State Representative Bryan Nelson's Office); Dominic Buhot (Greens Environmental Services); John Byrd (Aide to Orange County Commissioner Brummer); Ni-Bin Chang (University of Central Florida); Doug Everson (PTI); Francisco Gonzalez (Seminole County Environmental Health); Roxanne Groover (Florida Onsite Wastewater Association); Roland Harris; John Higgins (Markham Woods Association); Paul Jackson (NSF); Pio Lombardo (Lombardo Associates, Inc.); Roland Magyar (Town of Oakland); Steve Meints (Averett Septic Tank Company); Russ Melling (Lake County Environmental Health); Daniel Smith (Applied Environmental Technology); Gary Smith (Orange County Environmental Health); Ron Suchecki (Hoot systems, Inc.)
- **Department of Health (DOH), Bureau of Onsite Sewage Programs:** Paul Booher; Kim Duffek; Bart Harriss; Eberhard Roeder; and Elke Ursin

1. **Introductions:** Eight out of nine groups were present, representing a quorum. Chairman David Carter calls the meeting to order at 9:45 am.
2. **Review of Previous Meeting Minutes:** Motion by Bill Melton, seconded by Anthony Gaudio:  
**The minutes were approved as submitted.**  
The members voted and all were in favor with none opposed, the motion passed.
3. **Presentation Green's Environmental Comments on Alternative Solution for Nitrogen Control in Wastewater**

The RRAC allowed Mr. Buhot to move his presentation up from the public comment section on the condition that the presentation be limited to 10 minutes and a very brief question session afterward. Mr. Buhot presented on an alternative solution for nitrogen control in wastewater. He stated that 80 to 90 percent of the nitrogen in wastewater comes from urine and that the problem should be taken care of at the source. He presented on a type of toilet that separates the urine from the other wastes. After the presentation the RRAC asked questions. Ellen Vause thanked Mr. Buhot for thinking outside the box. Questions were asked to the Department to see how this type of split toilet would be possible under current rules.

#### 4. Discussion on Scope of Work for Onsite sewage Nitrogen Reduction Strategies:

Specific Appropriation 1682 was signed by the governor which appropriated \$1,000,000 to DOH to contract for a study to research nitrogen reduction strategies. There are several levels interactions with this project: the legislature and the governor who will receive the report and recommendations; DOH which is to contract for the study, provide administrative support to the RRAC, review and accept the deliverables, and provide the report to the government; the RRAC which has been tasked with controlling the study; and the contractors that will perform the work, provide reports, and address comments. The RRAC is statutorily required to rank proposals for contracts and to review draft report and provide comments, anything outside of this will need to be discussed at this meeting. There was a discussion on how the legislation is set up differently than the Wekiva legislation in that the Wekiva legislation had DOH provide a report to the legislature and this project does not specifically state who is responsible for providing the progress reports and the final reports.

**Anthony Gaudio made a motion, seconded by Bill Melton, that RRAC's role in the study is to: control the study, rank proposals for contracts, review draft deliverables and provide comments, RRAC will file a progress report, accept as completed the final report by contractors, and attach comments to the final report. RRAC voted, and this passed unanimously.**

There was a discussion on whether this project needs to be approved by TRAP, or whether the project is already authorized. The legislation does not mention TRAP at all.

Eberhard Roeder presented a draft scope of work for the Invitation to Negotiate (ITN). There was a discussion about the difference between a passive nitrogen reducing system and an active system, and the difference is that the passive system has no aerator pumps, no more than one effluent pump, and reactive media. Both a passive and an active system are classified as Performance Based Treatment Systems. There was also a discussion on whether the activities associated with each task are required to be completed as listed, or whether there is flexibility, and it was decided to bold the statement "the respondent can propose a different set of activities to achieve the objectives of the task" prior to listing the activities for each task of the project.

A detailed discussion was had on each of the proposed tasks in this project:

- a. **Task A:** Preselection of technologies and prioritizing technology for testing
- b. **Task B:** Field testing of technologies at actual home sites and cost documentation
- c. **Task C:** Evaluation of nitrogen reduction provided by soils and the shallow groundwater below and down gradient of various systems
- d. **Task D:** Development of a simple model for predicting nitrogen fate and transport from onsite wastewater systems

**Bill Melton made a motion, seconded by Paul Davis, to approve the Invitation to Negotiate (ITN) as it was discussed and amended during the meeting, including a preference for one provider to manage the entire project but also allowing the flexibility to evaluate individual tasks if there is a stand-out proposal. RRAC voted, and this passed unanimously.**

## 5. Presentation Lombardo Associates Inc. Passive Nitrogen Removing Technology

The RRAC allowed Mr. Lombardo to briefly present on his Nitrex technology, which is a type of passive nitrogen removal system.

## 6. Discussion on Scope of Work for Statewide Inventory of Onsite Sewage Systems:

The draft ITN was discussed for the inventory project.

**Anthony Gaudio made a motion, seconded by Eanix Poole, to direct DOH to do a study to accomplish the four objectives listed below:**

- **Task A: Collect all available data on how many septic systems are in each county and where they are located**
  - **Task B: Develop a methodology for performing an inventory based on best management practices after researching processes developed by other counties that have done similar inventories**
  - **Task C: Develop a database compatible with the existing DOH Environmental Health Database and put the collected data into the database**
  - **Task D: Using the best available data, provide a revised estimate of the number of onsite sewage systems in the State of Florida**
- RRAC voted, and this passed unanimously.

## 7. Brief updates on other projects

### a. Ongoing projects

- **Passive Nitrogen Removal Assessment** – The final project report has been submitted. This project is now complete.
- **Optical Wastewater Tracers Study (old Remote Sensing of Optical Brighteners Study)** – QAPP is final approved. Mote Marine contract for specialized lab work is near execution. Sampling is currently being done.
- **Manatee Springs, Performance of Onsite Systems Phase II Karst Study** – Currently working on the designs for the nutrient reducing systems. Also working on a new agreement with FSU to perform the sampling after the new systems are in operation.
- **Taylor County Source Tracking Study** – Final project report for the grant was submitted to EPA on July 1<sup>st</sup>. A tri-fold brochure summarizing the results of this study has been completed and is ready for distribution.
- **Monroe County Performance Based Treatment System Performance Assessment** – Currently developing criteria for the next phase of sampling. This includes expanding the diurnal variability assessment (looking at additional ATUs and PBTS for single family residences as well as PBTS serving multiple houses) and validating the field sampling protocol by sampling during routine inspections.

### b. Projects coming up

- **319 Project on Performance and Management of Advanced Onsite Systems** – DOH is waiting on the signed grant agreement from DEP. Once

this has been received it will be executed and work can begin. One of the initial tasks is to select a vendor to create a database of all advanced systems. The draft task description is near completion and will be advertised soon after the signed agreement from DEP is received.

- **Coastal Management Program Grant Funding Opportunity** – DOH is waiting on the signed grant agreement from DEP. Once this is received it will be executed and a provider selected through an ITN. The scope was presented at the last RRAC meeting, and the actual ITN document will begin routing in the near future.
- **Restoration of the University of South Florida (USF) Lysimeter Station** – Memorandum of Agreement was sent to USF on June 17<sup>th</sup> and DOH is waiting for a response back.
- **Phase II of the Florida Passive Nitrogen Removal Project** – Once scope of Nitrogen Removal project is finalized the determination on whether this task will be accomplished under Specific Appropriation 1682 will be made.
- **Wekiva Onsite Sewage Treatment and Disposal System (OSTDS) Seasonal Variability Assessment** - Once scope of Nitrogen Removal project is finalized the determination on whether this task will be accomplished under Specific Appropriation 1682 will be made. One of the tasks in the Nitrogen Removal project is planned to address this research priority.
- **Alternative Drainfield Product Assessment** – It was decided to postpone this research priority as staff will be busy with many other research projects at this point in time. This will be revisited prior to the next budget cycle determination.
- **Long-term deformation of tanks of different materials** – This project is currently in the scoping stages. Two stages are proposed: one focusing on a literature review on various tank materials, and another stage focusing on field sampling of various tanks based on the protocol developed during the first stage.

8. **Other Business** – David Carter asked about the status of the appointments of the two new RRAC members and Elke Ursin stated that a letter was sent out regarding nominations to the Florida Association of Counties and the Florida League of Cities and that one of the two letters have been received. Once the second letter is in, a final decision will need to be made by the delegated authority.

Ellen Vause stated that this is her last meeting as a RRAC alternate. She has accepted two national board positions which will take up much of her time. She has been on the RRAC since the late 1980's. She said that she would attend as many future meetings as she can. The RRAC members and DOH expressed their appreciation for all her hard work.

David Carter also stated that the next meeting may be his last meeting on the RRAC, and that the RRAC needs to start thinking about who will be the next chairperson.

Clay Tappan brought up a topic for new business: to look at potential rule changes to allow the dual compartment toilet that Green's Environmental presented on earlier in the meeting. David Carter stated that this may also require a plumbing code rule change as well. Questions to ask are whether it is permitted under today's code and what would it take to change it.

- 9. Public Comment** – The public was allowed to comment throughout the meeting. Two public comment presentations were made during the meeting. One was made by Green's Environmental on the dual compartment toilet that separates urine from the waste stream to reduce nitrogen. The other was made by Lombardo Associates, Inc. about Nitrex, which is a type of technology that passively reduces nitrogen.
- 10. Next Meeting:** The next meeting is anticipated to be on October 9, 2008. The focus of the next meeting will be to review and rank oral presentations from respondents for the ITN's for the Nitrogen Reduction Study, the Town of Suwannee Study, and possibly the Inventory Study if this is done as an ITN.

The meeting adjourned at 6:01 p.m.

## Florida Department of Health (FDOH)

### Research Review and Advisory Committee (RRAC) Meeting Summary

#### Meeting on July 30, 2008, Orlando Airport Marriott, Orlando, FL

- **RRAC Members/Alternates Present:** Sam Averett, David Carter, Paul Davis, Anthony Gaudio, Marc Hawes, Bill Melton, Jim Peters, Eanix Poole, Jim Rashley, Patti Sanzone, John Schert, Clay Tappan, Pam Tucker, and Ellen Vause. Eight out of nine groups were present, representing a quorum.
- **Review of Previous Meeting Minutes:** The minutes were approved as submitted.
- **Onsite Sewage Nitrogen Reduction Strategies:** Specific Appropriation 1682 was signed by the governor. This project is to be controlled by the RRAC and the role of RRAC was discussed. RRAC voted, and had unanimous approval, that RRAC's role in the study is to: control the study, rank proposals for contracts, review draft deliverables and provide comments, RRAC will file a progress report, accept as completed the final report by contractors, and attach comments to the final report.

A discussion was had on each of the proposed tasks in this project:

- **Task A:** Preselection of technologies and prioritizing technology for testing
- **Task B:** Field testing of technologies at actual home sites and cost documentation
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The RRAC members voted to approve the Invitation to Negotiate (ITN) as it was discussed and amended during the meeting, including a preference for one provider to manage the entire project but also allowing the flexibility to evaluate individual tasks if there is a stand-out proposal. This passed unanimously.

- **Statewide Inventory of Onsite Sewage Systems:** The draft ITN was discussed for the inventory project, and after much discussion from the RRAC, the individual tasks were modified as follows:
  - **Task A:** Collect all available data on how many septic systems are in each county and where they are located
  - **Task B:** Develop a methodology for performing an inventory based on best management practices after researching processes developed by other counties that have done similar inventories
  - **Task C:** Develop a database compatible with the existing DOH Environmental Health Database and put the collected data into the database
  - **Task D:** Using the best available data, provide a revised estimate of the number of onsite sewage systems in the State of Florida

The RRAC member voted on a motion to direct DOH to do a study to accomplish the four objectives listed above. This passed unanimously.

- **Brief updates on other projects**
  - Ongoing projects
    - **Passive Nitrogen Removal Assessment** – The final project report has been submitted. This project is now complete.
    - **Optical Wastewater Tracers Study (old Remote Sensing of Optical Brighteners Study)** – QAPP is final approved. Mote Marine contract for specialized lab work is near execution. Sampling is currently being done.
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