



**STATUS REPORT ON PHASE II AND PHASE III OF THE  
FLORIDA ONSITE SEWAGE NITROGEN REDUCTION  
STRATEGIES STUDY**

Division of Disease Control and Health Protection  
Bureau of Environmental Health  
Onsite Sewage Programs

**February 1, 2013**

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Surgeon General & Secretary  
Department of Health

Rick Scott  
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## **STATUS REPORT ON PHASE II AND PHASE III OF THE FLORIDA ONSITE SEWAGE NITROGEN REDUCTION STRATEGIES STUDY – FEBRUARY 2013**

### **EXECUTIVE SUMMARY**

This report is submitted in compliance with Line Item 512 Section 3, Conference Report on House Bill 5001, General Appropriations Act for Fiscal Year 2012-2013. The purpose of this project is to develop cost-effective, passive strategies for nitrogen reduction for onsite sewage treatment and disposal systems (OSTDS). Regardless of the source, excessive nitrogen has negative effects on public health and the environment.

The Florida Legislature has provided a total of \$4.4 million for Phases I, II, and the first part of Phase III of a three phase project. The project remains within the original total estimated budget of \$5.1 million so there is no cost over-run. Funds appropriated and expended to date have established necessary viable protocols and have been appropriately used to test, and refine technologies and strategies to be tested in the field.

This project is in its fourth year of six, which means a time over-run. The contract, executed in January, 2009, was developed for a five-year term due to the complexity and magnitude of work necessary to get meaningful results. During each fiscal year, the Department authorized the provider to work on tasks for which there was sufficient budget and spending authority causing some delay in project completion which means there is a time over-run. A final appropriation of funds is required to keep the project on track to be completed by January 16, 2015. Florida TaxWatch endorsed this project as a good use of public funds (Wenner 2008).

During the 2012-2013 fiscal year efforts are focused on installing, monitoring, and modeling various full-scale OSTDS field sites at locations throughout the State of Florida to evaluate nitrogen reducing technologies and gathering information on how nitrogen moves through the soil and shallow groundwater. This field testing phase is crucial, so that the project will yield practical results that can be used to develop viable, cost-effective alternative passive technologies for use by homeowners for nitrogen issues associated with onsite systems. There are ten sites in progress as contractually required.

The tasks associated with the final phase include: continuation and completion of field monitoring of the performance and cost of technologies at home sites and of nitrogen fate and transport in the shallow groundwater; development of nitrogen fate and transport models that will be calibrated with the field sampling results; and final reporting on all tasks with recommendations on onsite sewage nitrogen reduction strategies.

The Department's Research Review and Advisory Committee (RRAC) supports concluding this study as originally scoped and recommends:

1. For fiscal year 2013-2014, that the Legislature provides the final installment of cash in the amount of \$700,000 and the budget authority in the amount of \$1,000,000 to continue the field testing.
2. For the fiscal year 2014-2015, that the Legislature provides budget authority in the amount of \$500,000 for continuation and completion of the tasks associated with this legislatively mandated study.

Continued support for this project will ultimately benefit Florida's approximately 2.7 million onsite system owners by finding cost-effective nitrogen reduction strategies that will improve environmental and public health protection.

## 1 INTRODUCTION

The Florida Legislature tasked the Department of Health to conduct a study to develop passive strategies for nitrogen reduction for onsite sewage treatment and disposal systems (OSTDS). Regardless of the source, excessive nitrogen has negative effects on public health and the environment. The primary motivations for this study are the environmental impacts that the increased levels of nitrogen in water bodies can cause. Programs within DEP identify water bodies impaired by excessive nitrogen, establish targets for maximum nutrient loads, and develop management action plans to restore the water bodies. The relative impact of OSTDS on total nitrogen levels varies from watershed to watershed with estimates ranging from below five to more than 20 percent. There is widespread interest in the management of OSTDS and their nitrogen impacts. The significance of this innovative project is that it evaluates and develops strategies to reduce nitrogen impacts from OSTDS regulated by the Florida Department of Health (DOH). The goal is to develop systems that complement the use of conventional OSTDS and are also affordable and ecologically protective with reduced engineering and installation costs that assist in sustainable development.

This study was based on budget language in 2008 (Line Item 1682, House Bill 5001, General Appropriations Act for Fiscal Year 2008-2009) that instructed:

...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 2010 legislature (included in Appendix A) specified that the existing contract for this project will remain in full force; that the Department, the Department's Research Review and Advisory Committee (RRAC), and the Florida Department of Environmental Protection (DEP) shall work together to provide technical oversight; that DEP will have maximum technical input; that the main focus and priority for work in Phase II shall be in developing, testing, and recommending cost-effective passive technologies for nitrogen reduction; that field installations for this project will be subject to significant testing and monitoring; and that no state agency shall implement any rule or policy that requires nitrogen reducing systems or increases their costs until the study is complete.

The 2011 and 2012 legislature (included in Appendix B and Appendix C respectively) specified that the existing contract for this project will remain in full force; that the Department, the Department's Research Review and Advisory Committee (RRAC), and the Florida Department of Environmental Protection (DEP) shall work together to provide technical oversight; that

completion of Phase II and Phase III must be consistent with the terms of the existing contract; that the main focus and priority for Phase III be developing, testing, and recommending cost-effective passive technology design criteria for nitrogen reduction; the installed systems are experimental in nature and shall be installed with significant field testing and monitoring; and that no state agency shall implement any rule or policy that requires nitrogen reducing systems or increases their costs until the study is complete.

The Florida Legislature has provided a total of \$4.4 million for Phases I, II, and the first part of Phase III of a three phase project with a total estimated cost of \$5.1 million (Table 1). This includes an initial appropriation of \$900,000 by the 2008 Legislature for the first phase of this study and an appropriation of \$2,000,000 by the 2010 Legislature for the second phase of this study, and an appropriation of \$1,500,000 by the 2012 Legislature for the first part of the third phase of this study. This project will require additional cash in the amount of \$700,000 to complete the study. Additionally, the Department will need budget authority in the amount of \$1,000,000 for work during fiscal year 2013-2014. This report is submitted in compliance with Line Item 512 Section 3, Conference Report on House Bill 5001, General Appropriations Act for Fiscal Year 2012-2013, which appropriated the funding for the study.

Florida TaxWatch has endorsed this project as a study that is a good use of public funds and that provides homeowners with cost-effective options for nitrogen reduction (email communication from Kurt Wenner to Jerry McDaniel June 2, 2008).

Table 1. Summary of Legislative Funding

|  |               |
|--|---------------|
| Total Project Budget   | \$5,100,000   |
| Total Funding To Date  | (\$4,400,000) |
| Balance to Complete (2013-2014 Fiscal Year Projected Funding Need) | \$700,000     |

The study contract was awarded in January 2009 to a Project Team led by Hazen and Sawyer, P.C., and was based upon an anticipated budget of \$5 million over a 3 – 5 year project timeframe, with an additional \$100,000 budget to DOH for project management. The contract identifies the following tasks:

**Task A – Technology Evaluation for Field Testing: Review, Prioritization, and Development:** This task includes literature review, technology evaluation, prioritization of technologies to be examined during field testing, and further experimentation with approaches tested in a previous DOH passive nitrogen removal study. Objectives of this task are to prioritize technologies for testing at actual home sites and to perform controlled tests at a test facility to develop design criteria for new passive nitrogen reduction systems.

**Task B – Field Testing of Technologies and Cost Documentation:** This task includes installation of top-ranked nitrogen reduction technologies at actual homes, with documentation of their performance and cost. Cost documentation for the systems will be broken down by permitting, design, materials and construction, and operation and maintenance.

**Task C – Evaluation of Nitrogen Reduction Provided by Soils and Shallow Groundwater:** This task includes several field evaluations of nitrogen reduction in Florida soils and shallow groundwater and also will provide data for the development of a simple planning model in Task D.

**Task D – Nitrogen Fate and Transport Modeling:** The objective of this task is to develop a simple fate and transport model of nitrogen from OSTDS that can be used for assessment, planning and siting of OSTDS.

**FLORIDA DEPARTMENT OF HEALTH**

# Florida Onsite Sewage Nitrogen Reduction Strategies Project

FDOH Contract CORCL

**Objective:**  
To develop nitrogen reduction strategies for onsite sewage treatment and disposal systems (OSTDS) in Florida

**Study Areas:**

- A* Development and pilot testing of passive nitrogen reduction systems (PNRS)
- B* Field testing of full-scale nitrogen reduction systems to determine performance and cost
- C* Assessment of the fate and transport of nitrogen from OSTDS in soil and groundwater
- D* Development of decision support tools for OSTDS planning and nitrogen reduction

**HAZEN AND SAWYER**  
Environmental Engineers & Scientists

*in association with*

**AET**  
Applied Environmental Technology

**OTIS ENVIRONMENTAL CONSULTANTS**

**UNIVERSITY OF FLORIDA**  
Gulf Coast Research and Education Center

Figure 1. Sign posted at the University of Florida's Gulf Coast Research & Education Center's test facility.

## 2 PROJECT STATUS

Funding for the first and second phases of this project has been appropriated. The 2012 legislature approved funding for the first part of Phase III. A summary of the major project elements and their timing with funding phases is shown in Table 4. The contractor, in coordination with the RRAC and DOH, has successfully completed parts of Tasks A, B, C, and D, including literature reviews; ranking of nitrogen reduction technologies for field testing; design and construction of a test facility for further development of passive technologies; development of quality assurance documents for the test facility work, groundwater monitoring, field testing, and nitrogen fate and transport modeling; installation of nitrogen reducing systems at two home sites; completion of several sampling events of passive systems at the test facility and field sites; design and construction of a soil and groundwater test facility; and field sampling of the soil and groundwater under OSTDS at residential homes throughout Florida and at the test facility.



Figure 2. Test facility constructed at the University of Florida's Gulf Coast Research & Education Center.

Current efforts and work remaining for the 2012-2013 fiscal year includes: system installation and field sampling at additional home sites throughout Florida for the testing of passive systems and to test the soil and groundwater under OSTDS; sampling at the soil and groundwater test facility; and continuing with development of a nitrogen fate and transport model. RRAC supports concluding this study as originally scoped. The following work by task will proceed with the current funding level:

1. Task A. The technology evaluation included a total of 7 sample events at the passive nitrogen test facility, measuring 14 different analytes at over 40 sampling points in 11 systems, as well as a final report on the pilot passive nitrogen removal study at the Gulf Coast Research and Education Center (GCREC).  
**Current Status as of December 2012:** All sample events at the test facility have been completed. Test results are encouraging after 12 months of testing, showing a reduction in total nitrogen of over 95%, with a final effluent concentration of 2.6 mg/L or less for several of the systems. Analysis of the results from the 11 systems and report writing is underway. Two additional, drainfield-based systems have been installed and have had three monitoring events.
2. Task B. For field testing of technologies, the quality assurance project plan has been finalized. The research design proposes that seven onsite systems, utilizing various nitrogen removal technologies, will be installed at home locations throughout the State of Florida. It is anticipated that a total of seven field system performance monitoring events will be conducted on each these systems with the current funding level, measuring 16 different analytes at 2-8 different sampling points. A report providing a technical description of nitrogen reduction technologies will be written, as well as a report providing a template and user guidelines for system life cycle cost assessments.  
**Current Status as of December 2012:** Eleven homeowners residing at locations across Florida have agreed to participate in the study to date for Task B (Table 2).

Home sites have been identified in Wakulla County, the Wekiva area, and several other areas throughout the State. At least one of the home sites will have a gravity-fed system installed. Construction has been completed for two systems. Six out of seven sample events have been completed for the first system and one sample event has been completed on the second system. The design work has begun for the next three systems, which are located in Seminole County.

3. Task C. To evaluate nitrogen reduction provided by soils and shallow groundwater, a soil and groundwater test facility has been constructed to show how groundwater fate and transport of nitrogen occurs in multiple soil treatment unit regimes. Six of the thirteen total sampling events will be completed with the current funding level, sampling three of the four sites, and sampling six different locations at each site, and measuring multiple parameters in the effluent, soil, and groundwater. The existing OSTDS mound system at the University of Florida's Gulf Coast Research & Education Center (GCREC) in Wimauma, Florida was instrumented to study how nitrogen behaves in the soil and groundwater. Four sampling events that examine multiple parameters have been completed at the existing OSTDS mound system at GCREC. At least three soil and groundwater monitoring events will occur at up to three home sites to evaluate nitrogen movement in the soil and groundwater in the field, measuring multiple parameters in the effluent, soil, and groundwater.

**Current Status as of December 2012:** Tasks that have been completed thus far are the testing of media components per 381.0065(4)(m) F.S., two tracer tests to determine existing groundwater flow characteristics, and construction of the soil and groundwater test facility. Three of six monitoring events have been completed at four groundwater test areas at the soil and groundwater test facility to show how groundwater fate and transport of nitrogen occurs. Instrumentation of the existing OSTDS mound system at GCREC has been completed and four sample events have been conducted. Six homeowners have agreed to participate in the study to date for Task C (Table 2). Four home sites have been selected and instrumented. One sample event has occurred at the first of these sites, however, the groundwater flow direction could not be delineated, and no additional sampling events will occur at that site. Sampling is complete at the second instrumented site, and the third and fourth sites are currently being monitored. The third and fourth sites have completed one sample event.

Table 2. Field Work Status by County for Task B and Task C

| County       | # Sites Evaluated | # Agreements | Sites in Progress |
|--------------|-------------------|--------------|-------------------|
| Charlotte    | 12                | 0            | 0                 |
| Hernando     | 1                 | 0            | 0                 |
| Hillsborough | 4                 | 3            | 3                 |
| Lake         | 1                 | 0            | 0                 |
| Lee          | 4                 | 1            | 0                 |
| Marion       | 8                 | 3            | 0                 |
| Orange       | 2                 | 0            | 0                 |
| Polk         | 3                 | 1            | 1                 |
| Sarasota     | 13                | 0            | 0                 |
| Seminole     | 8                 | 6            | 4                 |
| Wakulla      | 4                 | 4            | 2                 |
| <b>TOTAL</b> | <b>60</b>         | <b>18</b>    | <b>10</b>         |



4. Task D. To address nitrogen fate and transport modeling from onsite systems in Florida a simple tool will be developed in Task D to assist in evaluating nitrogen loading from these systems. This will include development of a soil model to show how nitrogen is affected by treatment in Florida-specific soils, and a groundwater model to evaluate the movement of nitrogen down gradient from these systems. A final quality assurance project plan has been completed and the first steps will include the development of a soil model to show how nitrogen is affected by treatment in Florida-specific soils.

**Current Status as of December 2012:** Work has focused primarily on soil modeling under the current budget. Soil models are currently being developed and refined, and the project team has met several times to discuss and finalize model conditions. Groundwater modeling is underway with conceptual model development started. These models will be utilized to generate a simple tool for prediction of nitrogen fate, transport, and removal in Florida soils and groundwater.

### 3 ANTICIPATED PROGRESS IN 2013-2015

Additional funding and budget authority to carry over existing funding will be critical in the 2013-2015 fiscal years to complete the tasks associated with the final phase. These include: continuation and completion of field monitoring of performance and cost of technologies at home sites and of nitrogen fate and transport in the shallow groundwater; calibration and refinement of various nitrogen fate and transport models that will be calibrated with the field sampling results; and final reporting on all tasks with recommendations on onsite sewage nitrogen reduction strategies. In particular, the following work will occur with the final phase of funding being requested with this report:

1. For Task A, the final task report will be written. This report will include a summary of the accomplishments of the passive nitrogen removal test facility.
2. For Task B, it is anticipated that one final field system performance monitoring event will be conducted on each of the seven systems; and completion of final reporting on all of the field work associated with this task. Cost documentation for the systems will be broken down by permitting, design, materials and construction, and operation and maintenance.
3. For Task C, monitoring events at three home sites will be conducted to evaluate nitrogen movement in the soil and groundwater in the field. Final reporting for this task will be completed.
4. For Task D, the soil model will be completed and integrated with groundwater models which will be calibrated, and validated, utilizing the results of the field work collected in previous tasks, and a final task report will be written summarizing the results of this task.

## 4 FUNDING NEEDS

Activities in fiscal years 2008-2012 have prepared the framework for rapid implementation of all remaining project tasks in fiscal years 2013-2015. A final appropriation of cash in the amount of \$700,000 is required in 2013-2014. Budget authorization in the amount of \$1,000,000 in 2013-2014 and \$500,000 in 2014-2015 is required to reap the benefits of all previous work and to complete the goals of this project.

This project is in its fourth of six years and is within the original \$5.1 million budget. As of November 27, 2012 \$2,473,062 has been expended. Funds appropriated and expended to date have established necessary viable protocols and have been appropriately used to test, calibrate, and refine technologies and strategies to be tested in the field. Continued funding for Phase III of the project is necessary for extensive field testing (the major portion of Task B) to be completed. Field testing is crucial, so that the project will yield results that can be used to develop viable, cost-effective alternative passive technologies for use by homeowners for nitrogen issues associated with onsite systems.

Project Tasks (described previously and shown in Table 3) are broken down further into funding phases as follows:

Initial Funding in 2008-2010 (Phase I): \$900,000 (cash and budget authority) appropriated (in 2008 and 2009 state budgets) – Status: Complete and funds fully spent. The initial funding was targeted to prioritize systems for testing, summarize existing knowledge, develop testing protocols, and establish a test facility for detailed soil and groundwater monitoring and for preliminary testing of pilot scale passive nitrogen reduction systems.

Funding in 2010-2011: \$2 million (cash and budget authority) appropriated (in 2010 state budget) – Status: Ongoing. This funding is for field monitoring over a 16 month monitoring period of performance and cost of technologies at each home site, and of nitrogen fate and transport. This funding will also continue the development and monitoring work at the test facility and continue the modeling work.

Funding in 2011-2012: Although \$2.75 million in budget authorization was appropriated in the 2011 state budget, no additional cash accompanied the budget authorization – Status: Ongoing. The remaining cash from the 2010-2011 appropriation was used to continue the monitoring of systems and the soil modeling work. The preliminary results of the project are encouraging.

Funding in 2012-2013: \$1.5 million (cash and budget authority) appropriated (in 2012 state budget) – Status: Ongoing. These funds are being used to continue to install and monitor nitrogen reducing systems, draft a life cycle cost assessment template report for systems evaluated in this study, monitor nitrogen in the groundwater under existing OSTDS, and to develop, validate, and refine the soil modeling work.

Funding in 2013-2015: To adequately fund the final phase of the project, \$700,000 cash is required to fund the completion of scheduled tasks. Further testing and analysis is required to confirm the results to date with field data and to provide data for development of the engineering specifications for full system designs. The funds will be used to complete monitoring and other field activities, perform additional testing as deemed appropriate by the Legislature, and for final reporting with recommendations on onsite sewage nitrogen reduction strategies for Florida's future. Budget authority is required in the amount of \$1,000,000 in the FY 2013-2014 budget and \$500,000 in the FY 2014-2015 budget to complete all remaining tasks. .

Further information on this project, including previous legislative reports and detailed project reports, can be found on the Department's website:

<http://www.doh.state.fl.us/environment/ostds/research/Nitrogen.html>

Table 3. Summary of Cash Appropriations, Budget Authority, Encumbrances, and Balance of Study Funds

| <b>Fiscal Year</b> | <b>Cash Appropriations</b> | <b>Budget Authority</b>  | <b>Encumbered For Contract</b> | <b>Encumbered for DOH</b> | <b>Balance</b> |
|--------------------|----------------------------|--------------------------|--------------------------------|---------------------------|----------------|
| 2008-2009          | \$900,000                  | \$900,000                | \$213,727                      | \$21,029                  | \$665,244      |
| 2009-2010          | \$0                        | \$540,000                | \$485,720                      | \$6,845                   | \$172,679      |
| 2010-2011          | \$2,000,000                | \$2,000,000              | \$742,016                      | \$4,153                   | \$1,426,510    |
| 2011-2012          | \$0                        | \$2,725,000              | \$678,773                      | \$29,467                  | \$718,270      |
| 2012-2013          | \$1,500,000 <sup>1</sup>   | \$1,500,000              | \$1,500,000                    | \$38,506                  | \$679,764      |
| 2013-2014          | \$700,000 <sup>2</sup>     | \$1,000,000 <sup>3</sup> | \$879,764                      | \$0                       | \$500,000      |
| 2014-2015          | \$0                        | \$500,000 <sup>3</sup>   | \$500,000                      | \$0                       | \$0            |
| <b>TOTAL</b>       | <b>\$5,100,000</b>         |                          | <b>\$5,000,000</b>             | <b>\$100,000</b>          |                |

1 Cash appropriated for 2012-2013 fiscal year only

2 Cash appropriation requested with this report

3 Budget authority requested with this report

## 5 RECOMMENDATIONS

The Department's Research Review and Advisory Committee (RRAC) supports concluding this study as originally scoped and recommends:

1. For fiscal year 2013-2014, that the Legislature provides the final installment of cash in the amount of \$700,000 and budget authority in the amount of \$1,000,000 to continue the field testing.
2. For the fiscal year 2014-2015, that the Legislature provides budget authority in the amount of \$500,000 for continuation and completion of the tasks associated with this legislatively mandated study.

This final funding will be applied to the final phase of the project, for completion of field monitoring of performance and cost of technologies at home sites and of nitrogen fate and transport in the shallow groundwater, calibration and refinement of various nitrogen fate and transport models that will be calibrated with the field sampling results, and final reporting on all tasks with recommendations on onsite sewage nitrogen reduction strategies.

Continued support for this project will ultimately benefit Florida's approximately 2.7 million onsite system owners by finding cost-effective nitrogen reduction strategies that will improve environmental and public health protection. When fully funded, the results of this project will assist with producing nitrogen reducing systems that protect groundwater through reduced life-cycle costs and lower energy demands.

Table 4. Summary of Contractual Funding Phase Tasks and Progress

| Task  | Status                                  | Phase I          | Phase II           | Phase IIIa         | Phase IIIb           |
|---|---|------------------|--------------------|--------------------|----------------------|
| <b>A Task A: Technology Selection &amp; Prioritization</b>                                |   | <b>\$352,144</b> | <b>\$336,514</b>   | <b>\$0</b>         | <b>\$35,480</b>      |
| Literature review   | Complete                                |                  |                    |                    |                      |
| Ranking of nitrogen reduction technologies for field testing                              | Complete                                |                  |                    |                    |                      |
| Design and construction of test facility  | Complete                                |                  |                    |                    |                      |
| Quality assurance project plan  | Complete                                |                  |                    |                    |                      |
| Monitoring and sample events (7 events)   | Complete                                |                  |                    |                    |                      |
| Final test facility report  | Underway                                |                  |                    |                    |                      |
| Final task report   | Funding required <sup>1</sup>           |                  |                    |                    |                      |
| <b>B Task B: Field Testing of Technologies</b>  |   | <b>\$50,202</b>  | <b>\$599,610</b>   | <b>\$265,408</b>   | <b>\$263,834</b>     |
| Quality assurance project plan  | Complete                                |                  |                    |                    |                      |
| Installation of ranked nitrogen reduction technologies at 7 field sites                   | Underway                                |                  |                    |                    |                      |
| System performance monitoring events at 7 sites   | Underway                                |                  |                    |                    |                      |
| Life cycle cost assessment template development   | Not started                             |                  |                    |                    |                      |
| Final life cycle cost assessment report (per system)                                      | Funding required <sup>1</sup>           |                  |                    |                    |                      |
| Final task report   | Funding required <sup>1</sup>           |                  |                    |                    |                      |
| <b>C Task C: Evaluation of Nitrogen Reduction by Soils &amp; Shallow Groundwater</b>      |   | <b>\$216,164</b> | <b>\$1,095,977</b> | <b>\$436,220</b>   | <b>\$162,640</b>     |
| Quality assurance project plan  | Complete                                |                  |                    |                    |                      |
| Design of test facility   | Complete                                |                  |                    |                    |                      |
| Construction of test facility   | Complete                                |                  |                    |                    |                      |
| Test facility monitoring and sample events (4 test areas sampled 6 times)                 | Underway, partially funded <sup>2</sup> |                  |                    |                    |                      |
| Instrumentation of existing onsite sewage system mound at GCREC facility                  | Complete                                |                  |                    |                    |                      |
| GCREC mound sample events   | Complete                                |                  |                    |                    |                      |
| Field sites sample events (4 sites, 3 sites will be sampled 3 times, 1 site discontinued) | Underway, partially funded <sup>2</sup> |                  |                    |                    |                      |
| Final task report   | Funding required <sup>1</sup>           |                  |                    |                    |                      |
| <b>D Task D: Nitrogen Fate and Transport Models</b>                                       |   | <b>\$74,357</b>  | <b>\$292,021</b>   | <b>\$251,334</b>   | <b>\$190,310</b>     |
| Quality assurance project plan  | Complete                                |                  |                    |                    |                      |
| Soil model development (simple and complex)   | Underway                                |                  |                    |                    |                      |
| Performance evaluation and refinement of soil models                                      | Not started                             |                  |                    |                    |                      |
| Shallow groundwater/soil model development  | Funding required <sup>1</sup>           |                  |                    |                    |                      |
| Performance evaluation and refinement of soil/groundwater model                           | Funding required <sup>1</sup>           |                  |                    |                    |                      |
| Decision making framework   | Funding required <sup>1</sup>           |                  |                    |                    |                      |
| Final task report   | Funding required <sup>1</sup>           |                  |                    |                    |                      |
| <b>Project Management (sum of contractor and Department of Health)</b>                    |   | <b>\$119,953</b> | <b>\$149,003</b>   | <b>\$105,407</b>   | <b>\$103,422</b>     |
| Contractor project management   | Underway                                | \$90,695         | \$109,003          | \$90,407           | \$87,679             |
| Department of Health project management   | Underway                                | \$29,258         | \$40,000           | \$15,000           | \$15,743             |
| <b>Total Project Budget</b>   | <b>\$5,100,000</b>                      | <b>\$812,820</b> | <b>\$2,473,125</b> | <b>\$1,058,369</b> | <b>\$755,686</b>     |
| <b>Total Appropriated Cash</b>  | <b>\$4,400,000</b>                      | <b>\$900,000</b> | <b>\$2,000,000</b> | <b>\$1,500,000</b> | <b>-<sup>3</sup></b> |

1 A "funding required" subtask status indicates that the \$700,000 requested for fiscal year 2013-2014 is required to fund the subtask

2 A "partially funded" subtask status indicates that a subtask has received partial funding, but still requires a portion of the \$700,000 required to complete the funding for the project

3 A total of \$700,000 is required to complete the funding for the project

GCREC – Gulf Coast Research & Education Center

## **APPENDIX A. 2010 Legislative Language**

SECTION 3 – HUMAN SERVICES

486 SPECIAL CATEGORIES

CONTRACTED SERVICES

|   |           |
|---|-----------|
| FROM GENERAL REVENUE FUND . . . . .               | 153,772   |
| FROM ADMINISTRATIVE TRUST FUND . . .              | 337,765   |
| FROM FEDERAL GRANTS TRUST FUND . . .              | 348,235   |
| FROM GRANTS AND DONATIONS TRUST<br>FUND . . . . . | 2,648,438 |
| FROM RADIATION PROTECTION TRUST<br>FUND . . . . . | 150,000   |

From the funds in Specific Appropriation 486, \$2,000,000 from the Grants and Donations Trust Fund is provided to the department to continue phase II and complete the study authorized in Specific Appropriation 1682 of chapter 2008-152, Laws of Florida. The report shall include recommendations on passive strategies for nitrogen reduction that complement use of conventional onsite wastewater treatment systems. The department shall submit an interim report of phase II on February 1, 2011, a subsequent status report on May 16, 2011, and a final report upon completion of phase II to the Governor, the President of the Senate, and the Speaker of the House of Representatives prior to proceeding with any nitrogen reduction activities.

Section 14. In order to implement Specific Appropriation 486 of the 2010-2011 General Appropriations Act, and for the 2010-2011 fiscal year only, the following requirements shall govern Phase 2 of the Department of Health's Florida Onsite Sewage Nitrogen Reduction Strategies Study:

(1) The underlying contract for which the study was let shall remain in full force and effect with the Department of Health and funding the contract for Phase 2 of the study shall be through the Department of Health.

(2) The Department of Health, the Department of Health's Research Review and Advisory Committee, and the Department of Environmental Protection shall work together to provide the necessary technical oversight of Phase 2 of the project, with the Department of Environmental Protection having maximum technical input.

(3) Management and oversight of Phase 2 shall be consistent with the terms of the existing contract; however, the main focus and priority for work to be completed for Phase 2 shall be in developing, testing, and recommending cost-effective passive technology design criteria for nitrogen reduction.

(4) The systems installed at actual home sites are experimental in nature and shall be installed with significant field testing and monitoring. The Department of Health is specifically authorized to allow installation of these experimental systems. In addition, before Phase 2 of the study is complete and notwithstanding any law to the contrary, a state agency may not adopt or implement a rule or policy that:

(a) Mandates, establishes, or implements any new nitrogen-reduction standards that apply to existing or new onsite sewage treatment systems or modification of such systems;

(b) Increases the cost of treatment for nitrogen reduction from onsite sewage treatment systems; or

(c) Directly requires or has the indirect effect of requiring, for nitrogen reduction, the use of performance-based treatment systems or any similar technology; provided the Department of Environmental Protection administrative orders recognizing onsite system modifications, developed

through a basin management action plan adopted pursuant to section 403.067, Florida Statutes, are not subject to the above restrictions where implementation of onsite system modifications are phased in after completion of Phase 2, except that no onsite system modification developed in a basin management action plan shall directly or indirectly require the installation of performance-based treatment systems.



## **APPENDIX B. 2011 Legislative Language**

SECTION 3 – HUMAN SERVICES

465 SPECIAL CATEGORIES

CONTRACTED SERVICES

|   |           |
|---|-----------|
| FROM GENERAL REVENUE FUND . . . . .               | 97,489    |
| FROM ADMINISTRATIVE TRUST FUND . . .              | 335,165   |
| FROM FEDERAL GRANTS TRUST FUND . . .              | 643,776   |
| FROM GRANTS AND DONATIONS TRUST<br>FUND . . . . . | 3,401,038 |
| FROM RADIATION PROTECTION TRUST<br>FUND . . . . . | 150,000   |

From the funds in Specific Appropriation 465, \$2,725,000 in nonrecurring funds from the Grants and Donations Trust Fund is provided to the department to complete phase II and phase III and complete the study authorized in Specific Appropriation 1682 of chapter 2008-152, Laws of Florida. The report shall include recommendations on passive strategies for nitrogen reduction that complement use of conventional onsite wastewater treatment systems. The department shall submit an interim report of the completion of phase II and progress on phase III on February 1, 2012, a subsequent status report on May 16, 2012, and a final report upon completion of phase III to the Governor, the President of the Senate, and the Speaker of the House of Representatives prior to proceeding with any nitrogen reduction activities.

Section 7. In order to implement Specific Appropriation 465 of the 2011-2012 General Appropriations Act, and for the 2011-2012 fiscal year only, the following requirements govern the completion of Phase 2 and Phase 3 of the Department of Health's Florida Onsite Sewage Nitrogen Reduction Strategies Study:

(1) The Department of Health's underlying contract for the study remains in full force and effect and funding for completion of Phase 2 and Phase 3 is through the Department of Health.

(2) The Department of Health, the Department of Health's Research Review and Advisory Committee, and the Department of Environmental Protection shall work together to provide the necessary technical oversight of the completion of Phase 2 and Phase 3 of the project.

(3) Management and oversight of the completion of Phase 2 and Phase 3 must be consistent with the terms of the existing contract. However, the main focus and priority to be completed during Phase 3 shall be developing, testing, and recommending cost-effective passive technology design criteria for nitrogen reduction.

(4) The systems installed at homesites are experimental in nature and shall be installed with significant field testing and monitoring. The Department of Health is specifically authorized to allow installation of these experimental systems. Notwithstanding any other law, before Phase 3 of the study is completed, a state agency may not adopt or implement a rule or policy that:

(a) Mandates, establishes, or implements more restrictive nitrogen-reduction standards to existing or new onsite sewage treatment systems or modification of such systems; or

(b) Directly or indirectly requires the use of performance-based treatment systems or similar technology, such as through an administrative order developed by the Department of Environmental Protection as part of a basin management action plan adopted pursuant to s. 403.067, Florida Statutes. However, the implementation of more restrictive nitrogen-reduction standards for onsite systems may be required through a basin management action plan if such plan is phased in after completion of Phase 3.

## **APPENDIX C. 2012 Legislative Language**

SECTION 3 – HUMAN SERVICES

512 SPECIAL CATEGORIES

CONTRACTED SERVICES

|   |           |
|---|-----------|
| FROM GENERAL REVENUE FUND . . . . .               | 2,047,489 |
| FROM ADMINISTRATIVE TRUST FUND . . . . .          | 335,165   |
| FROM FEDERAL GRANTS TRUST FUND . . . . .          | 643,776   |
| FROM GRANTS AND DONATIONS TRUST<br>FUND . . . . . | 676,038   |
| FROM RADIATION PROTECTION TRUST<br>FUND . . . . . | 150,000   |

From the funds in Specific Appropriation 512, \$1,500,000 in nonrecurring funds from the General Revenue Fund is provided to the department to complete phase II and phase III of the study authorized in Specific Appropriation 1682 of chapter 2008-152, Laws of Florida. The funds will be spent for installing field systems and sampling, installing and sampling the soil and groundwater at various sites throughout Florida to determine how nitrogen moves, and developing various models to show how nitrogen is affected by treatment in Florida-specific soils. The department shall submit a status report before October 1, 2012, a subsequent status report before February 1, 2013, and a final report upon completion of phase III to the Governor, the President of the Senate, and the Speaker of the House of Representatives prior to proceeding with any nitrogen reduction activities.

Section 5. (1) In order to implement Specific Appropriation 512 of the 2012-2013 General Appropriations Act, and for the 2012-2013 fiscal year only, the following requirements govern the completion of Phase 2 and Phase 3 of the Department of Health's Florida Onsite Sewage Nitrogen Reduction Strategies Study:

(a) The Department of Health's underlying contract for the study remains in full force and effect and funding for completion of Phase 2 and Phase 3 is through the Department of Health.

(b) The Department of Health, the Department of Health's Research Review and Advisory Committee, and the Department of Environmental Protection shall work together to provide the necessary technical oversight of the completion of Phase 2 and Phase 3 of the project.

(c) Management and oversight of the completion of Phase 2 and Phase 3 must be consistent with the terms of the existing contract. However, the main focus and priority to be completed during Phase 3 shall be developing, testing, and recommending cost-effective passive technology design criteria for nitrogen reduction.

(d) The systems installed at homesites are experimental in nature and shall be installed with significant field testing and monitoring. The Department of Health is specifically authorized to allow installation of these experimental systems. Notwithstanding any other law, before Phase 3 of the study is completed, a state agency may not adopt or implement a rule or policy that:

1. Mandates, establishes, or implements more restrictive nitrogen-reduction standards to existing or new onsite sewage treatment systems or modification of such systems; or

2. Directly or indirectly requires the use of performance-based treatment systems or similar technology, such as through an administrative order developed by the Department of Environmental Protection as part of a basin management action plan adopted pursuant to s. 403.067, Florida Statutes.

However, the implementation of more restrictive nitrogen-reduction standards for onsite systems may be required through a basin management action plan if such plan is phased in after completion of Phase 3.

(2) This section expires July 1, 2013.