

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

Approved Minutes of the Meeting held at Sylvan Lake Park, Sanford, FL  
October 18, 2007

Approved by RRAC on January 23, 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); John Glenn (member, Environmental Interest Group); Marc Hawes (alternate, Home Building Industry); Stan Keely (alternate, Professional Engineer); Bill Melton (member, Consumer); Jim Rashley (alternate, DOH-Environmental Health); Patti Sanzone (alternate, Environmental Interest Group); Clay Tappan (member, Professional Engineer); Pam Tucker (member, Real Estate Profession); and Ellen Vause (alternate, Septic Tank Industry)
  - **Not represented:** Restaurant Industry, State University System
  - **Visitors:** Phillip Alexander (Superior Septic); George Bartuska (BFA Environmental); Alice Berkley (Office of Representative Bryan Nelson); Dominic Buhot (Greens Environmental Services); John Byrd (Aide to Orange County Commissioner Brummer); David Childs (FWEA Utility Council); Ron Davenport (Infiltrator Systems); Kim Dove (Seminole County Environmental Health Department); Doug Everson (Plastic Tubing Inc.); Chris Ferraro (Florida Department of Environmental Protection); Roxanne Groover (Florida Onsite Wastewater Association); Roland Harris (Complete Ozone Inc.); Jerry Henkins (Seminole County Environmental Health Department); John Higgins (Markham Woods Association); Ken Jones (Markham Woods Association); Tony Matthews (Seminole County); Steve Meints (Averett Septic); Harley Pattee (Complete Ozone Inc.); Daniel Smith (Applied Environmental Technology); Britt Watson (Averett Septic Tank); Walter Wood (Lake County)
  - **Department of Health (DOH), Bureau of Onsite Sewage Programs:** Paul Booher; Dr. Eberhard Roeder; and Elke Ursin
1. **Introductions:** Seven out of nine groups were present, representing a quorum. Chairman David Carter calls the meeting to order at 9:40 am.
  2. **Review Minutes of Meeting June 12, 2007:**
    - a. **Motion was made by Stan Keely and seconded by Sam Averett for the RRAC to approve the June 12, 2007 meeting minutes. One clarification change was requested on the June 12, 2007 meeting minutes. Under the Closing Comments section, the minutes are to change to: "Ellen Vause stated that Florida needs to stop dumping wastewater into streams and oceans. We need to allow it to filter down to the aquifer through the soil." The minutes were approved as amended. All were in favor with none opposed of approving the amended minutes, and the motion passed.**
  3. **Wekiva Onsite Nitrogen Contribution Study:**

Elke Ursin presented the progress of the study since the June 12th meeting. Linda Young revised the pie charts for Task 3 to eliminate the loading estimates from the other sources and the onsite sewage loading estimates were included. John Byrd asked for clarification

on this. Elke Ursin explained that Task 2 and Task 3 were required to report the estimates on loading from onsite systems. The final report does not include loading estimates for other sources and there is only one pie chart comparing the relative contributions of inputs. John Byrd read from the past meeting minutes that the RRAC made a motion to remove the loading numbers from the report. Pam Tucker stated that the report said that contrary to the RRAC's recommendation it was decided administratively that they were going to put the onsite sewage loadings into the report. The report was sent on June 30th and the deadline was met. There was a TRAP meeting on August 21st. There was a motion made, seconded, and passed to approve rule language prohibiting land application of septage and food establishment sludge within the Wekiva Study Area. There was a motion made, seconded, and passed to table all other proposed rule language specific to the Wekiva Study Area until completion of the DEP phase II study. The vote was 7 in favor, with 2 opposed. The two dissenting votes were Patti Sanzone representing the Florida Environmental Health Association and Russ Melling representing the County Health Departments. Both indicated they wanted the panel to discuss each specific proposal. There was debate over the first issue regarding requiring performance based treatment systems for new systems, but the second issue eliminating grandfathering for separation to wet season water table and surface water setbacks and the third issue requiring all systems to be pumped and evaluated every 5-years were both good recommendations that should not only apply to the Wekiva Study Area, but statewide. There was a discussion on the Wekiva River Basin Commission meeting that was held on October 16, 2007. During the commission meeting Gerald Briggs, Bureau Chief of the Department of Health Bureau of Onsite Sewage Programs, presented the proposed rule language and reported that at that time the department is discussing options with the governor's office but there were no specific plans with moving forward with rule making. Paul Booher reported that after the commission meeting, Mr. Briggs received a call from Dr. Conti, Environmental Health Division Director, advising him that the department would proceed with rule making.

There was a discussion on the process of rule making, filing, and public notification. Paul Booher called Dale Holcomb in the program office and reported that when the office is given the notice to proceed, language will be submitted to the Florida Administrative Weekly (FAW) where it takes 10-days to prepare for advertisement. Then it is advertised for 21-days for public hearings and comments. If there are significant changes, then it would need to be re-advertised. Assuming there are no changes or legal challenges, the rule is filed and becomes effective 20-days after the date filed.

Some of the public education that has been done since the last meeting is that a presentation on Wekiva was made at the Florida Environmental Health Association Annual Education Meeting in August, a poster was also presented at this meeting and received a certificate of excellence, a presentation was made to the Ichetucknee Springs Working Group in October, and an abstract was accepted for presentation at the National Onsite Wastewater Recycling Association 2008 Water Symposium.

Pam Tucker stated that there is no hurry for this rule to be implemented. The Wekiva Parkway can be up to 20-years away. She stated that there is no scientific proof that the nitrogen contribution is significant and the study is not complete on this issue. Bill Melton stated that Pam Tucker should be speaking about relative significance. The data is not

available to make the determination of the relative significance as it relates to other contributors. He does think that a determination can be made that there is a significant amount of nitrogen that is getting to the aquifer from onsite systems in the WSA.

The proposed rule was discussed, with the understanding that this is more in the purview of the Technical Review and Advisory Panel (TRAP), and that the RRAC has not come to a conclusion on relative significance of nitrogen impacts. Some of the discussion points:

- The rule proposal to prohibit land spread of sewage in the Wekiva Study Area (WSA) was approved by TRAP.
- Each of the three counties in the WSA has a comprehensive plan that should illustrate whether sewer is planned to be available to specific areas. It would be helpful to have a GIS map available to better view this information, but it is not clear whether this exists or not.
- The proposed rule does not have any specific requirements for testing. Dr. Roeder stated that the ability for DOH to gather fees that covered testing was taken out of the statute in 2001, but the design engineer can require it. The state code requires an inspection to make sure the system is functioning mechanically as it should. DOH does an inspection annually and the maintenance entity does an inspection a minimum of two times per year. If it does not meet the requirements specified by the engineer, the engineer will be required to redesign the system. Sam Averett stated that one of the biggest issues is who will pay for the sampling. He mentioned a previous TRAP issue regarding the manufacturer to sample a subset of all installed systems and if the subset passes then they are approved. This would require each manufacturer to assure the state that they are performing as stated. It is too expensive to require the homeowner to pay for the sampling. Ellen Vause stated that the homeowners also have a part in whether a system is working or not, because water-use habits determine the strength of the effluent. She stated that if the state feels that this has to be done in the WSA then some assurances need to be set to make sure systems do meet the discharge requirements. In order to verify the 70% nitrogen reduction standard an influent sample would be required which would double the cost. Paul Davis stated that pumping the tank helps bring the system back to normal. The county health departments will not have enough time to sample influent and effluent for each system. Sam Averett stated that it is crucial that DOH develops a maintenance protocol and a testing protocol for each manufacturer and make the manufacturer pay for it. He stated that the performance based language in the code is still vague and that the department could interpret the language to say that monitoring is required on every system at least once or twice a year. This interpretation could be clarified in a memo to allow the existing code to be used to monitor systems.
- The proposed rule does not specifically state **total** nitrogen.
- Requiring a minimum bottom of drainfield elevation of 18-inches below finished grade would wipe out any alternative drainfield product that is more than 12-inches in height. This requirement would also make it difficult to ensure the required fall in the drainlines. An installer commented that only 6-inches of soil cover over the top of the drainfield would make it easy to crush the drainfield when covering.
- There was some confusion over what forms are required, and whether this indicates that a non-certified individual would be allowed to perform a site evaluation. [NOTE: clarification on this issue was received, and a Certified

Environmental Health Professional (CEHP) is required to perform any site evaluation]. Some septic contractors voiced a concern over there being too many forms to fill out and whether there are any other options. They stated that this is time consuming and expensive. Kim Dove stated that if a site evaluation is required there is also an additional fee for the county health departments or other CEHP.

- The proposed rule language as written would prohibit tanks that are larger than within one tank size of current requirements.
- In the existing system language it states that the system would need to meet these requirements if it is in need of repair, modification, or re-approval. Re-approval would include those systems being inspected under part (c) when they are pumped and certified every five years.

Paul Booher stated that there were several good points that would need to be considered, and that staff will report these comments to Gerald Briggs.

David Carter summarized the discussion. At the last RRAC meeting the committee made a motion that no action be taken on Task 4 (to develop recommendations to reduce impact if significance was determined). The department is now prepared to move forward with new rule language. The department staff are taking notes and listening and this is a good group with a lot of expertise and experience. He thinks the department will take into consideration several of the comments made at this meeting. The RRAC is supposed to be a research committee looking at studies and recommending new studies. This is blurring into a TRAP area. Bill Melton agrees that this is not RRAC's purview and making comments is essentially all that can be done. Pam Tucker stated that adopting the rule without DEP's Phase II being completed is wrong. TRAP and RRAC tabled the issue to wait for the scientific data to be completed. She stated that it is important for RRAC to have these inputs and have an agreed upon position. Ellen Vause crafted a motion stating that RRAC stands behind their previous position and that the proposed rules are premature. Bill Melton stated that he is not sure the rules are premature, that onsite systems are contributing nitrogen, but that the data is not there to determine the relative significance. Sam Averett stated that he has no doubt that onsite systems in the Wekiva Area put nitrogen into the Wekiva Springs. Patti Sanzone stated that DOH could propose rules on this issue, even if there was no proposed Wekiva Parkway. Paul Davis stated that most of the discussion so far has been a TRAP committee discussion, not research.

Sam Averett made a motion which was seconded by John Glenn:

**RRAC, after review of the Department of Health proposed rule language for Wekiva, still stands behind the previous statement that RRAC is unable to determine relative significance of onsite system impacts of nitrogen to the Wekiva Study Area.**

There was a discussion on the relative significance of nitrogen impacts from onsite systems. Several RRAC members were in agreement that onsite systems contribute to the quantity of nitrogen in the Wekiva Study Area, but the relative significance has not yet been agreed upon. After a lengthy discussion, Stan Keely called the motion into question. The members voted and four were in favor: Sam Averett, David Carter, Paul Davis, and

Stan Keely; and three were opposed: John Glenn, Bill Melton, and Pam Tucker and the motion passed. [NOTE: a clarification was made later in the meeting from Pam Tucker stating that she was actually in favor of this motion and would like the minutes to reflect this.]

Paul Davis made a motion which was seconded by Bill Melton:

**If the proposed rule goes forward, if a pump is required, low pressure dosing should be used due to the increase in system longevity and relatively low additional cost.**

There was a discussion that for a minimal additional fee, the life of the system could be extended by years. The members voted and six were in favor with one opposed (Pam Tucker).

It was decided that RRAC would not go through the proposed rule item by item as that is TRAP's area.

After a short break, both the engineer member and alternate left, but there was still a quorum. [NOTE: Clay Tappan returned to the meeting during the updates on other projects].

David Carter stated that DEP has posted the MACTEC report and some additional information on their website [www.dep.state.fl.us/water/waterprojectfunding](http://www.dep.state.fl.us/water/waterprojectfunding), under Wekiva nitrate sourcing. Chris Ferraro with DEP made an announcement that DEP has been working on the Total Maximum Daily Flows (TMDL's) for the Wekiva Study Area. Tentatively, on November 29th, there will be a public meeting for the TMDL's for the Wekiva Study Area. Bill Melton asked whether DEP will get the MACTEC information refined to help RRAC make a final determination on relative significance. Elke Ursin stated that she had received an email from Bonnie Hall with DEP who stated that they are working on the scope of work right now and the scope is close to being complete. There were no specific dates set at that time, but as soon as there is any additional information she will forward it on.

#### **4. Brief updates on other projects**

##### **a. Ongoing projects**

- i. Passive Nitrogen Removal Assessment** – Elke Ursin provides a brief overview of the project. The draft literature review report and draft quality assurance project plan were provided in the mailed packets to the RRAC members for review. Dr. Daniel Smith presented on his progress to date. The literature review and database portion was completed with assistance from Dr. Dick Otis. The goal of the study is to evaluate passive treatment media for removal of total nitrogen from onsite wastewater. This project will focus on various filter materials, which are more stable and less subject to variation. The project has five tasks: a literature review and database, laboratory experiments, a feasibility analysis (how the results and recommendations deployed), an economic analysis, and a final report. The literature review task involved searching databases and search engines, looking into test centers,

and personal contacts. Paul Booher recommends that the report include suggestions on how to deal with the material that has been expended and needs to be disposed. Dr. Smith goes over zeolites and coir fiber as aerobic filters. Roxanne Groover stated that Quanics has performed NSF testing on the coir fiber and has information on total nitrogen. Dr. Smith stated that the coir may not need to be tested. He then went over anoxic filters. Next Dr. Smith went over the Quality Assurance Project Plan (QAPP). The Invitation to Negotiate defines passive treatment as *“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** in mechanical and moving parts and uses a **reactive media** to assist in nitrogen removal”*. Dr. Smith stated that first the effluent needs to be nitrified and then denitrified, so he is proposing a two stage process. The first stage is an unsaturated media filter that provides ammonification and nitrification. The second stage is a saturated media filter containing an electron donor and is anoxic thus providing denitrification. The next decision is where to put the pump. Dr. Smith decided to place the pump in the front because nitrification will be the trickiest part of this process. This placement of the pump will allow pressure dosing at the first stage filter and will also allow for timed dosing. He has located some potential sites for the laboratory experiments. Septic tank effluent will be used for the experiments. He went over the media configuration, and how the columns will be configured. The experiment will be set up and then monitored to see how well they work. The stage one will be dosed once per hour for 2-3 minutes as needed, at a minimum loading rate of 2 gallons/sq.ft./day. Both stage one and stage two will be operated and monitored over 60 days and will test for temperature, pH, alkalinity, DO, and the entire nitrogen species. In response to a suggestion to change conditions in the experiment, Roxanne Groover asks how the determination will be made to adjust the loading. She stated that she would be more comfortable with a baseline that does not change. Dr. Smith stated that before altering the flow he will gather enough information prior to making a change. He stated that he is planning on running the column for about 3-weeks prior to taking any samples to allow for the microbial population to become established. He stated that the experiments should be run for a longer timeframe, but that the time and budget do not allow for this. The feasibility and economic assessment portions of the project will be based on the best available information in the timeframe allotted for this project. Dr. Eberhard Roeder suggests keeping the parameters the same for the first 6 samples and then an assessment can be done on what to adjust for a potential new project. Paul Davis asks whether the experimental design calls for part of the system to be above the ground, and if so is it possible to do an unsaturated tricking filter for aeration coming directly from the outlet of the septic tank then pumping to the saturated zone to keep the system in the ground. Dr. Smith stated that that the design calls for an unsaturated area and it is possible to configure the system as Mr. Davis suggests but that having the pump at the beginning will be more aggressive at converting to nitrates. Dominic Buhot asks whether lava rock was considered as a media, and Dr. Smith stated that it was not looked at but that it is similar to some of the expanded shale media. Dr. Smith asks if there is anywhere to find that material in a granular form, and Mr. Buhot stated that it can be found at landscaping suppliers. Elke Ursin stated that RRAC and

DOH have to provide comments on the Literature Review report and the Laboratory Experiments report within two weeks of the RRAC meeting. She will send an email to remind the RRAC members.

- ii. **High Strength Waste Study** – Paper submitted to American Society of Agricultural and Biological Engineers. If there are any comments please forward them on.
- iii. **Manatee Springs, Performance of Onsite Systems Phase II Karst Study** – Paper submitted to Water Research on 8/21/07 by Florida State University. Due to contractual and timing issues, this contract has expired and must be re-advertised and re-contract.
- iv. **Monroe County Performance Based Treatment System Performance Assessment** – Dr. Eberhard Roeder presented on the preliminary results of the Monroe County project. Some of the preliminary observations are:
  - 1. Only a few odd numbers
  - 2. Diurnal variability appears lower for nutrients than for CBOD<sub>5</sub> and TSS
  - 3. Nutrient grab samples appear very consistent with time-composite samples, less so for TSS
  - 4. Wastewater strength (CBOD<sub>5</sub> and TSS) appears to be lower than in Keys Onsite Wastewater Nutrient Reduction Study (OWNRS)
  - 5. Nutrient concentrations appear to be higher than in Keys OWNRS study
  - 6. There will be repeat sampling done to assess variability for the same system over time with the added sample parameters of fecal coliform, alkalinity, and pH.

There was some discussion over the strength of the influent being higher than expected. The system may be working properly, but if the influent is too high the effluent may be higher than the 10 mg/L that is required. Sam Averett wanted clarification on whether any of the tested systems are on the list of state approved systems. Dr. Roeder stated that it was primarily one manufacturer with some others that were approved by the county health department. Sam Averett stated that it is difficult to take an influent sample, and the sample may be skewed by fecal matter. Dr. Roeder pointed out that the low number of Total Suspended Solids (TSS) supports that there was low solid fecal matter or other solids that may skew the results, and that the settling tank where the sample was taken from has effectively settled the solids.

- v. **Remote Sensing of Optical Brighteners Study: Mote Marine Report** – Summary report from DEP has been submitted on results of tasks up to the airborne Light Detection and Ranging (LiDAR). The flow-through fluorescence method showed potentially interesting patterns (i.e. one location showed a higher signal corresponding to locations where failed septic systems were known to exist). Contract was amended on Oct. 15th to comply with Contract Administration requirements (end date changed to 12/31/07). New contract will need to be issued using IGA exemption to allow for completion of scope. Phone conference to be held on Oct. 25th to discuss next steps. The Mote Marine portion of this project looked into the optical properties of water and optical brighteners in great detail. They also took some wastewater from onsite systems and characterized it. They discovered two inputs that could be an indicator of wastewater. The results were very promising and now DEP will look into how to incorporate these results in what they have to do.

vi. **Taylor County Source Tracking Study** – RRAC made motion on May 8, 2007 meeting for staff to look into a follow-up sampling event to capture the May seasonal low water table event. FDEP was contacted to see if funds were available, and they were not available for a May sampling event, FDOH utilized research \$ to fund the project (just under \$14,000). Request for proposal was sent to various interested parties and FAU was selected to conduct the study. The sample site locations were determined to be the same as the original list with the exception of one site, which the previous study did not find a marked difference between another site in close proximity, which could be replaced with a new one. An interim progress report was submitted at the end of June 2007 outlining the May 2007 seasonal low water table sampling event, and is included in the packets sent to the RRAC. FDEP's 319 program has funded a September 2007 sampling event. Analysis is ongoing, and a final project report compiling all sampling events will be submitted in January 2008.

b. Projects coming up

i. **319 Project on Performance and Management of Advanced Onsite Systems** – \$300,000 grant through the EPA 319 program administered by FDEP. FDOH will provide \$200,000 in matching funds through the Monroe County project. Tasks:

1. Monroe County detailed study of variability of performance of advanced systems (Keys study)
2. Statewide database of advanced systems based on permit records
3. Survey of the perceived strengths and weaknesses of the current management of advanced onsite systems. County health department employees, septic contractors, homeowners will be polled and each set will have different questions.
4. Statewide assessment of operating condition and performance of advanced systems (random sample of 600 systems)
5. Quarterly influent and effluent sampling for a sample of systems (approximately 70 systems) to see seasonal variability
6. Booklet with case studies outlining both strengths and weaknesses of the current program and best practices in advanced onsite management

Elke Ursin stated that she needs RRAC to vote on whether this project scope is acceptable to move forward, so that she can present it to the TRAP. Sam Averett made a motion that was seconded by Paul Davis:

**RRAC recommends moving forward with the 319 project.**

Bill Melton stated that he thinks it is not a good idea to mix ATU's, PBTS, and interim systems with the sampling. Dr. Roeder stated that these are all in the category of advanced. Bill Melton thinks this category is too broad. Dr. Roeder stated that including all these classifications would allow for a distinction between the types of systems to see if there is a difference in treatment effectiveness between the different types. Patti Sanzone stated that she views this project as a program check. Sam Averett stated that it is critical to make sure the data is collected effectively. The specifics will be discussed at future meetings. There was a discussion on making sure what is sampled will be statistically significant. The database will give an indication of the population of

systems, how many there are and of what type. Then a number can be determined on what systems to sample. If a system has too few units installed to be statistically significant, they may be removed from the sampling scheme and the extra numbers reallocated to other systems. The members voted and all were in favor with none opposed.

- ii. **Coastal Management Program Grant Funding Opportunity** – FDEP has sent out a notification for a grant funding opportunity due November 15, 2007. One idea is to utilize this funding to sample in the Town of Suwannee, Cedar Key, and areas of Taylor County where areas have converted from onsite systems to sewer and where there is previous sample data from when the areas were still on onsite systems.

Sam Averett made a motion that was seconded by Clay Tappan:

**RRAC recommends FDOH apply for the FDEP Coastal Management Program grant funding opportunity.**

The members voted and all were in favor with none opposed.

5. **Budget Discussion** – This item is to be discussed at the next meeting
6. **Prioritization of Future Projects** – This item is to be discussed at the next meeting, RRAC members are encouraged to develop a list of potential future project ideas to assist in the discussion.
7. **Public Comment** - The public was allowed to comment throughout the meeting and their comments are included throughout the minutes.
8. **Closing Comments, Next Meeting, and Adjournment**
  - a. David Carter requested that staff work on filling some of the vacant RRAC positions. The Real Estate Industry and State University System have vacancies for the alternate category, both member and alternate of the Restaurant Industry have been absent for many meetings, and the regular member of the Septic Industry has been absent for many meetings as well. David Carter requested that letters be sent to those four groups requesting that they find someone who will attend the meetings. The next meeting will also have an election for the chairperson and vice chairperson and it will be important to get someone in the position so that continuity is maintained.
  - b. Pam Tucker asked for clarification on whether the passive nitrogen systems being studied in Dr. Smith's project would work with performance based treatment systems, and asked for clarification on what is passive about them. It was explained that passive systems just sit there and work with minimal outside influence. David Carter stated that we are always looking for ways to improve how systems are working, and this project is not necessarily tied into Wekiva. The results of the Passive Nitrogen Removal project could show, for example, that for \$2,000 you can put this gizmo on a system and achieve an 80% reduction. Sam Averett stated that no private company wants to study this because you can't patent oyster shells, for example. Paul Davis stated that no one is going to study this except for entities like the State of Florida.
  - c. No date was set for the next meeting. Next meeting anticipated to be some time in January 2008 at a location to be determined. Pam Tucker motioned to adjourn and Clay Tappan seconded. The meeting adjourned at 2:25 pm.