

**Silver Springs and Rainbow Springs Basin Management Action Plan (BMAP) Onsite
Sewage Treatment and Disposal Systems (OSTDS) Remediation Plan Meeting**

**Marion County Growth Services Conference Room
2710 E. Silver Springs Blvd, Ocala, FL 34479**

November 3, 2016, 9:00 a.m.

Advisory Committee members present:

- Dan Dooley, Florida Department of Health (FDOH) in Marion County
- Tracy Straub, Marion County
- Scott Hersey, City of Ocala
- Darryl Muse, City of Ocala
- Bryan Schmalz, Bay Laurel Center CDD (On Top of the World)
- Burt Eno, Rainbow River Conservation, Inc.
- Russ Melling, Oklawaha Valley Audubon
- Robert Himschoot, Florida Home Builders Association
- Chris Rowe, Florida Onsite Wastewater Association
- Anthony Dennis, FDOH in Alachua County

Remediation Plan Overview and Sunshine Law – Mary Paulic

- The Remediation Plan needs to:
 - Provide for BMAP revisions by July 2018
 - Include development of 5, 10, and 15 year goals
 - Include a plan to meet the TMDL in 20 years
- OSTDS Advisory Committee members
 - Represent the sectors that are affected by the OSTDS Remediation Plan
 - Have expertise to lend to the process and to successful outcomes to reduce nitrogen loadings from OSTDS sources
 - Advise/provide DEP with opinions or direction on Wastewater/OSTDS Remediation Plan
- The Advisory Committee operates under the Sunshine Laws (Article 1, Section 24, Florida Constitution and Section 286.011, F.S.).
 - This limits ability of committee members to communicate on issues that could come before the committee
 - Discussion with alternates and staff is permissible

Prioritizing Areas for Projects – Mary Paulic

- The Florida Springs and Aquifer Protection Act requires the establishment of Priority Focus Areas (PFA).
 - PFAs are defined in the Marion County Springs Protection Ordinance
 - Approximate the 10 year time of travel
 - Includes known conduit flow for Silver

- Meets requirements of the law
- We have put together a map of OSTDS locations based on DOH 2014 data.
 - The map only shows OSTDS that were listed as likely or known
 - The somewhat likely category was removed, based on discussion with DOH staff
 - This dropped the number of OSTDS for Silver slightly, but did not really affect Rainbow where we have greater confidence in the data
- For Silver, we need a 79% reduction in loading for OSTDS
 - This equates to 211,699 lbs-N in the PFA
 - This equates to 496,483 lbs-N in the entire BMAP area (including PFA)
 - When you subtract the PFA from the BMAP area, you come up with an additional reduction needed of 284,784 lbs-N
 - This shows that just focusing on the PFA is not going to be enough to reach the goal.
- The required reduction for rainbow is 82%
 - This equates to a reduction of 206,492 lbs-N for OSTDS for the entire BMAP area
 - The PFA is much smaller for Rainbow, and there was not a distinction between the PFA and the rest of the BMAP area when the NSILT was done
- Remediation Options
 - Septic systems that do a better job of nitrogen removal
 - To sewer or not to sewer, what influences that decision?
- The recharge map for the Silver Springs area shows that where much of the development is in this basin is where we have high recharge
 - There are some areas that have relatively low recharge, like around the Ocklawaha river and Marshall swamp.
- For Silver, there are 35,161 OSTDS in high recharge areas
 - This is not quite half, but is a big number
 - OSTDS in high and medium recharge areas add up to 65,335
 - Low recharge area only has 6,405
- Sewer considerations
 - From DEP's BMAP perspective
 - Septic systems located in high recharge areas account for the highest loading to ground water
 - Septic systems located in medium or high density residential, commercial, institutional land use – greater input of nitrogen loading relative to land area
 - From the local utility perspective
 - Availability of sewer. Is expansion of service area necessary?
 - Costs. How to bill for service.
 - Provide water service at the same time?
 - Policy and planning considerations.
 - Private versus public utility. Who is responsible for septic systems located within a private utility service area?
 - From the policy perspective
 - Social and political willingness.
 - Multiple levels of policy from state to local utility.

Robert Himschoot: We have been talking almost exclusively about septic to sewer, but not talking about the County doing anything about septic management in existing areas. For the NSILT model, there hasn't been any background checks to see if the calculations are accurate or not. NSILT uses literature review, and not fate and transport. In some of the high recharge areas, it would be good to select some sites to test to see if the NSILT calculation hypothesis is correct. Based on discussions I have had and the national averages, many find this hard to digest. Some are saying the NSILT model is not very accurate and I think it has been challenged a couple of times before. If you do an actual fate and transport, you may find some different results. The second issue is the cost of doing any of these projects. The State receives around \$20 million for the state revolving fund, which almost all goes to water and wastewater projects, and almost none goes to septic system programs. Counties need to start requesting money for a septic management program. Also should be looking at future development and what the builder is going to be faced with. Can they put in a conventional system, or do they have to install a nitrogen reducing system? Will homeowners then be required to hook up to central sewer if that becomes available, which could be \$20,000. Within the first five years, Marion County should be able to draft a request from DEP for state revolving funds for a management plan to identify areas that could be problematic. Even if you sewer everything, where is the treated water going to go? Where is it going today?

Answer: Treated wastewater is currently going to reuse and spray fields. We do have a portion of the management plan for research questions. For funding, we are discussing this and may have a discussion on this December about the State Revolving Loan Fund and other grants.

Robert Himschoot: Marion County has to have the appetite for implementing a septic system management plan to see where the problematic areas are.

Russ Melling: I don't disagree, but we also have to change the statute and rules to allow the newer systems. Even if the technology was here next week, we couldn't require somebody to install one of these newer systems. Planning is good, but we can't implement until there are statutes and rules to do it.

Robert Himschoot: The study has been complete and has been submitted to the legislature.

Russ Melling: We need legislature buy in. This became a major issue in Wekiva. There was a constitutional attorney who said that if the system was working properly, you couldn't make somebody upgrade. If we can't overcome that issue, that is a major roadblock. We need to recognize these issues and have a plan.

Tracy Straub: This is why Marion County is at the table. The legislative changes are important to us, and we have been pushing for that.

Robert Himschoot: I haven't seen anything here about the management of existing systems at all.

Tracy Straub: We have talked about this. There are issues from a County standpoint. There are many areas we don't feel like we can reach. We don't have a department that handles these issues. There isn't a funding mechanism yet. We are looking for legislature to move on this. So far it doesn't seem like they are behind it.

Russ Melling: We lost the issues in Wekiva because legislature was not behind it. We're more concerned with money issues than with saving the springs. We have to educate people and get them serious about this. We need public buy in.

Shane Williams: You are all talking about different arms of the remediation plan and what it is supposed to be, and they all have to be developed concurrently.

Robert Himschoot: I agree with that, but I didn't see that in the plan here today.

Shane Williams: That is only because we are focusing on a separate area today.

- DEP proposed prioritization scheme is based on combinations of land use and recharge rates. Useful for enhanced septic system placement and sewer connection.
 - We are looking at high and medium density development in high and medium recharge areas.
- Other areas of concern are categories that don't get captured in urban land use
 - Low density residential, recreational, or agriculture in high and medium recharge areas
- We have put together a map that shows wastewater treatment plants.
 - The pink areas are what we know to be utility service areas. We know some of them very well, but for some like hawthorn and Williston we had to use the city boundaries.
 - Some of this is a few years old so we may need some updated information.
 - This is not segregated by size, which we may need to look at more because it tells us where we may have some capacity.

Wastewater Effluent Standards

Christianne Ferraro, DEP Central District: We have issued permit revisions to all permitted wastewater facilities in the PFA for both Silver and Rainbow. They all now have a 5-year timeframe to come into compliance with the updated standards. They have been given administrative orders to get their systems upgraded and are required to give a progress report twice a year.

Robert Himschoot: Are there any wastewater treatment plants in the area that use deep-well injection?

Christianne Ferraro: No, there are not.

Tracy Straub: Have we done the calculations to know what load reduction we will get from the updated standards?

Answer: No, I haven't looked at that yet.

Tracy Straub: I think that would be good to know.

Dan Dooley: If there are some facilities that can't upgrade, what will happen to them?

Answer: They can make a case that they aren't having an impact. We will be talking to them about that. One option will be that they can hook up to larger system.

Christianne Ferraro: There are some that are permitted for over 10,000 gallons per day that will now have high treatment standards, but take in much lower volumes. So for some, we are recommending that they lower their permitted capacity so their standards are a bit lower. This is

only done with an evaluation of their flows over the last 5 years. In the Wekiva area, we had 50 facilities upgrade to meet a minimum of 10 mg/L. 10 is pretty achievable, but takes some work.

Bryan Schmalz: Do we know what will be allowed for the reasonable assurance demonstration?

Answer: There was some language written into the BMAP and it is not very detailed.

Bryan Schmalz: For us, it would be \$11 million to upgrade to meet the 3 mg/L standard, and we can't do that in 5 years. We are trying to figure out what is allowed and a viable showing that we are not going to be an impact.

Answer: We left it pretty open to give plenty of options.

Christianne Ferraro: There will be a team of people that will be reviewing these demonstrations. They will be considered and evaluated on a case by case basis.

Bryan Schmalz: The funding needs to be focused on septic, which can get much greater reductions for the money.

Robert Himschoot: That comes back to knowing the fate and transport of the nitrogen.

Discussion: Ocala and Belleview projects.

- Belleview is looking at some proposals to do some sewerage in their service area.

Darryl Muse, City of Ocala: We have shut down our oldest wastewater treatment plant and have modified wastewater treatment plant number 2. Both of our plants are producing less than 2 mg/L, so we are happy about that. We have a sewerage project going on right now. We currently have about 600 people that have signed up, and have done about 400 hookups to date. We have been focusing on residential so far, but are now starting to work with commercial. We have about 175 signed up so far since January. We are working on a project to develop a manufactured wetland at the Pine Oaks golf course. We are designing it to handle 5 MGD, but anticipate running around 3 MGD. We are doing some calculations now to see what reductions we will get from that. We need stronger statutory language to enforce connection. We have about 70% reception to our program when we are paying 100% of the cost, but that leaves a couple hundred out there for us that aren't connecting when infrastructure is there.

Tracy Straub: How does DEP communicate with legislature?

Answer: That happens at levels above us. We can answer questions and provide briefs, but are not able to lobby.

Tracy Straub: If this committee decides that we need to promote legislative changes, how does that go forward?

Answer: That will have to come from the Counties or other entities. They will ask us about it when it comes up and we will back it, but we can't go to them. We bring it up to Division staff. They do ask us what we would like to see. We have educated upper management on the issues, which is a big deal. It has been brought up to the highest levels.

Christianne Ferraro: Another option for local governments is to work through their league of cities and counties.

Dan Dooley: The Department of Health is in the same exact situation. We are not able to lobby.

Tracy Straub: Marion County puts together legislative priorities every year and we bring this forward, does Ocala do this?

Darryl Muse: Yes, we do the exact same thing.

Tracy: I would be happy to bring in our legislative agenda items when we have it together. This would be good to discuss with Belleview as well.

Burt Eno: I am here representing the RRC. We are an advocacy group without money or legislative authority. I noticed that the emphasis seems to be on the Silver River. I see a lack of consideration for the Rainbow, and I don't want to see that happen. I sent an email on Sept. 24th with suggestions for projects pertaining to rainbow.

Shane Williams: have you talked to the City of Dunnellon about this yet?

Burt Eno: I have presented the list to the City. This is as much a County issue as well. One project is the small package plants along High School road. Another is the removal of septic on the west side of the river. Another issue is that the Dunnellon wastewater treatment plants need to be upgraded. We need to hook up Rio Vista customers that are still on septic. Chatmire is a small community that is on septic but have city water. Though it may be more farfetched and more out in the future, sewer lines can be expanded to some other communities. Existing septic system upgrades and clean out is necessary, even for systems right on the river. We need to expand education programs to local schools and communities.

Shane Williams: Several of those projects, like the High School Road expansion, are in the BMAP right now. The city has not yet entered into the funding agreement with SWFWMD to complete it. Neighborhoods like Chatmire will show up as priority areas as we go through this, but they are in Dunnellon's service area. We are talking to them about ensuring they have a representative here at the meetings.

Burt Eno: I can never see the city as coming up with matching funds for this.

Shane Williams: that problem isn't just limited to Dunnellon, even though it may be greater with them.

Angel Roussel: The Board asked us to look into the Rainbow Springs area. There was a concept plan put out there a couple years ago. At that point there was no money on the private side or grants that came through. We have put in an application for springs money to look at the feasibility of making that project a reality.

Burt Eno: That sounds good. I am just here to be an advocate for the Rainbow River.

Shane Williams: That is good, because Dunnellon doesn't have somebody here right now. Though we are discussing Silver a lot, the same principles will move over to Rainbow.

Burt Eno: The septic issue is less in the Rainbow area. Our problem is mostly agriculture.

Angel Roussel: We have a project ongoing to take out the Sleepy Hollow plant. We are looking at improving effluent at the Silver Springs Shores WWTP. We are looking at two focus areas, the Shores and some package plants near silver. There are some decentralized systems and septic around the Sharpes Ferry Road area.

Shane Williams: We have had some specific areas we need to look at brought up by Burt and Angel. I need the specific information for that. Another area is looking at potential factors for sewerage. One thing to look at is seeing where water service is already available. I haven't heard any issues with the factors brought up so far.

Robert Himschoot: I am curious about failure rate of septic systems in the Chatmire area.

Dan: I don't know that it is any worse there than everywhere else.

Shane Williams: A third option we may want to look at is septic system maintenance and if we can quantify a benefit from that.

Robert Himschoot: It all comes back to doing a study to find out what is going on with those systems. We keep discussing going from septic to sewer, but we need to know what is going on first.

Shane Williams: It sounds like we need to discuss a meeting time to talk about the science and public education components sooner rather than later.

Bryan Schmalz: For maintenance, are we talking about pumping as well?

Robert Himschoot: Yes, but we have to make sure the tank is water tight. We also have to look at the drain field. It is to evaluate the whole system. Proper wastewater management still has to be performed, whether it is a septic or a WWTP.

Advanced Onsite Sewage Treatment Systems – Dr. Gao

- If we want to have advanced systems as an option, we have to look at what is available and how they are permitted. DOH has put together a table for this.
- Based on nitrogen removal capacity, OSTDS can be divided generally into 3 categories
 - Conventional systems
 - Even if a conventional system is installed and maintained correctly, they generally only provide 30% nitrogen removal.
 - Lined drainfield & existing advanced technologies
 - These provide a medium level of removal, up to 70%
 - Nitrogen reducing systems
 - Those specifically designed to remove nitrogen and have removal rates up to 90-95%.
- Nitrogen exists in various forms and must be dealt with progressively in each form to ensure removal. Conceptually:
 - Organic nitrogen becomes ammonia through ammonification (anaerobic)
 - Ammonia becomes nitrate through nitrification (aerobic)
 - Nitrate becomes nitrogen gas through denitrification (anoxic), this requires food
- Conventional OSTDS design is a septic tank and drainfield
 - Good at nitrification, but not nitrogen removal. These systems weren't designed to remove nitrogen
 - We can do lots of maintenance and pumping, but will still generally see only a 30% nitrogen removal rate
- One of the advanced systems is an Aerobic Treatment Unit (ATU)

- The major difference between this and a conventional system is that there is an aeration component
 - Not specifically designed to remove nitrogen, but remove around 50%
 - These can be used in FL if certified by NSF (NSF40)
- There are some ATU systems that do take into consideration nitrogen removal
 - Requires achieving NSF40 and NSF245 (which requires 50% nitrogen removal)
 - FL rule doesn't specify NSF245
 - Some of these systems may choose to be classified by the state as a performance based treatment systems (PBTS)
 - There are some units that can get removal rates greater than 70%
- "Passive" nitrogen reduction systems reduce effluent nitrogen using reactive media for denitrification and a single liquid pump, if necessary
 - Reactive media comes in two stages
 - Stage 1 provides aeration for nitrification (sand & expanded clay)
 - Stage 2 provides organic carbon and low dissolved oxygen for denitrification (lignocellulosics & elemental sulfur)
- There are a couple different designs of passive nitrogen systems
 - In-Tank Passive Nitrogen System (conventional OSTDS + in-tank sand filter)
 - Recirculates some of the nitrified water
 - Removal rate of around 70%
 - In-Ground Passive Nitrogen System (conventional OSTDS + in-ground two stage system: stage 1 sand, and stage 2 lignocellulosic materials)
 - Stage 1 and 2 are vertically stacked, an impervious liner is put below the stage 2 layer to ensure saturation
 - Provides 70% removal rate, but this is expected to increase with improved designs
 - In-Tank Passive Nitrogen System (in-tank two stage biofilter with recirculation stage 1, dual media stage 2 lignocellulosic (2a) followed by elemental sulfur (2b)
 - Provides greater than 90% removal
 - Combined Passive Nitrogen System
 - This type of system uses a combination of in-tank and in-ground
 - Provides greater than 90 removal
- Those are what is available in the State, but that doesn't mean we can use them. They still have to be permitted and approved. We have three categories of permitting:
 - ATU
 - A sewage treatment unit which introduces air into sewage to provide biochemical stabilization within a treatment receptacle" Florida Administrative Code (FAC) Rule 64E-6.002(2)
 - Sprinkle water through air or loose filter material
 - Bubble air through water
 - Certification by NSF International or other certification organization for CBOD5 and TSS Treatment based on NSF40 standards
 - Some NSF40 certified systems may also be certified for NSF245 standard for nitrogen.
 - PBTS
 - Specialized onsite sewage treatment and disposal system

- Achieves a specific and measurable established performance standard for multiple parameters
 - Designed by a professional engineer with a background in wastewater engineering, licensed in Florida
 - Using appropriate application of sound engineering principles
 - Additional requirements in FAC Chapter 64E-6 Part IV
- Innovative Systems: A special category of PBTS
 - “Employ materials, devices, or techniques that are novel or unique and that have not been successfully field-tested ... in this state” Section 381.0065(2)(g), Florida Statutes (FS)
 - Require NSF/Environmental Technology Verification (ETV) data for approval as innovative systems. FAC Rule 64E-6.026(1)(b)
 - Included in permitting category PBTS FAC Rule 64E-6.025(10)
- Must be designed to treat to specified level. Must first apply for innovative systems permit. Must have data showing this type of system works and must provide manual to DOH. Must provide fairly extensive monitoring plan to show the system works in Florida and under our conditions.
- Around 30 ATU NSF40 systems approved by the State.
- All of these newer systems, need some rule revisions to be used
 - Current rule does not allow a liner to be placed in the drainfield
 - Revised rule was recently presented to TRAP
 - Major questions were about monitoring to ensure we have data from different geographical areas
 - Currently reviewing some new liner designs
 - Expecting that new rule will be approved early next year for liner system
- It is DOH’s intention to classify in-tank systems as PBTS, which require monitoring
 - Still need to come up with specifications to determine their performance level

Scott Hersey: What is the cost difference between a conventional system and a PBTS?

Answer: Has a general range of \$13,000-\$26,000. An NSF245 system is around \$10,000. A conventional system is \$5,000-\$8,000. You have to understand that these systems haven’t been standardized, which will eventually drop the price significantly.

Mary Paulic: When does DOH feel like they have enough data to move from an innovated system to an accepted system?

Answer: Generally after 1-2 years of data collection it will probably be sufficient.

Mary Paulic: Is there a number for how long they have to be monitored?

Answer: That is different for each type of system?

Shane Williams: Is it right that only one of these types of systems requires a change in rule?

Answer: Yes, just for the liner.

Russ: Is it correct that we can’t currently require these systems?

Answer: Yes, but that is part of this OSTDS remediation plan.

Question: DOH isn’t going to have a rule requiring these, right?

Answer: Yes, but the BMAP is in Secretarial Order and can be enforced.

Public Comment

Question: Are we looking at what is being done in the other BMAPs?

Answer: It is all BMAP by BMAP specific.

Comment: I would like to see all BMAPs looking at both nitrogen and phosphorus.

Answer: We see a lot that the solutions are the same for both. We are not really focusing on a specific solution for one nutrient.

Question: Is the 200 meter buffer zone used for St. Johns going to apply statewide?

Answer: That is BMAP specific. In some areas it is further than 200 meters.

Comment: I mention that because in Rainbow as you go further downstream, the septic right next to the river are impacting it.

Answer: Yes, that is an issue and is something we can address in the remediation plan.

Dan Dooley: Are you saying that the in-tank systems can be used right now?

Answer: After the specification are developed.

Dan Dooley: Will the specifications be part of the code?

Answer: No, they will be for the particular system.

Question: Does the media have a lifespan?

Answer: The study only lasted about 2 years, so we don't have specific data to quantify that yet. Studies done elsewhere and calculations show that it is longer than 20 years, and some may last longer than 100 years.

Mary: Are you looking at the data for the media used in other applications?

Answer: Yes, there is a lot of them being installed for agricultural systems.

Next meeting

- The next meeting date is tentatively December 15th
- Tentative topics for next meeting
 - Roxanne Groover will discuss alternative septic systems that enhance nitrogen removal
 - Further discussion of sewerage option
 - Look at where has water service but not sewer
 - Need updated service area information from Utilities
 - What we can do to manage the problem
 - Planning requirements
 - Local ordinances
 - How do we quantify a benefit from a maintenance program?
 - Public education plan development
 - Funding sources
 - May be able to bring in Department of Economic Opportunity as a presenter

Robert Himschoot: We need to look at the existing statute.

Russ Melling: For retirees and low income homeowners, the issue was the monthly bill. Maybe there can be some talk about grants to help these people.

Comment: There should be a recognition or reward system in place.

Robert Himschoot: Does Marion County have a fertilizer ordinance?

Answer: Yes.

- We are looking at Jan 19, 2017 as the date of the following meeting and need to know of any conflicts.

Meeting adjourned