

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

**On Top of the World, Master the Possibilities, Cyprus Hall
8415 SW 80th Street, Ocala, FL**

September 15, 2016, 9:00 a.m.

Advisory Committee members present:

- Dan Dooley, Florida Department of Health (FDOH) in Marion County
- Tracy Straub, Marion County
- Darryl Muse, City of Ocala
- Bruce Phillips, City of Belleview
- Bryan Schmalz, Bay Laurel Center CDD (On Top of the World)
- Burt Eno, Rainbow River Conservation, Inc.
- Russ Melling, Oklawaha Valley Audubon
- Jerry Guerra, Marion County Building Industry Association
- Robert Himschoot, Florida Home Builders Association
- Troy Nanke, PTI for Florida Onsite Wastewater Association

Follow-up from July Meeting – Mary Paulic and Shane Williams

- 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
 - Include elements of each of the three “prongs”
 - Projects
 - Science
 - Education
- 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
- This Remediation Plan merges the Rainbow Springs and Silver Springs BMAP areas
 - The BMAP areas mimic the 1,000 year time of travel for water moving to the springs
 - There is no rigid delineation between the springsheds
 - The City of Ocala moves wastewater back and forth between basins
- DOH did a presentation at the last meeting on the Florida Water Management Inventory and compared the number of OSTDS found in the NSILT to their inventory
 - The NSILT actually contained 6,667 more OSTDS in the Silver BMAP area than what was presented
 - This brings the difference between the two tools to 9,709
 - DOH is still finding more potential parcels
 - For Rainbow Springs, there is a bigger difference between the two tools

- We noticed that the data seems to not account for some areas that are on sewer

Bruce Phillips: I can confirm that that is the case.

- The Advisory Committee will be operating under Sunshine Law
 - This limits ability of committee members to communicate on issues that could come before the committee
 - Discussion with alternates and staff is permissible
- The purpose of the Advisory Committee is to provide ideas, comments, suggestions and concerns to DEP toward reducing nitrogen loads from OSTDS sources through development of an effective and cost-efficient OSTDS Remediation Plan
- The Advisory Committee is not a voting body and does not need a quorum or to reach a consensus
- We have sent out a request to the Silver Springs BMAP stakeholders for project updates for the upcoming annual meeting
 - The request will go out soon for the Rainbow Springs BMAP stakeholders
 - No date has been set for the meeting, yet
 - Looking for any new projects, and status updates for ongoing projects
 - Needed so DEP can accurately track projects and the associated load reductions
 - We added more options in the spreadsheet to get a better idea of the likelihood of projects getting funding
 - Private entities are encouraged to provide any studies or activities that are useful as well
 - Those that have not received a request for updates by email should contact Shane Williams
 - Knowing what projects are going on will be helpful when legislature is deciding how to spend funds
 - sewer

Jerry Guerra: We would like to get a copy of the projects that are out there right now.

Response: We can provide you with the spreadsheet. We will also have a summary at the annual meeting.

- We mentioned the dye trace studies that were done for Silver Springs at the last meeting
 - Displayed are the locations of where dye was put in
 - Different dyes were used at different points
 - This study was conducted with SJRWMD taking the lead
 - There was a high amount of variability in the amount of time it took for water to travel between points
 - Don Boniol (SJRWMD) gave a presentation on this at the March 2013 meeting
 - The publication for this study is SH2012-SP3 and can be found at: <http://www.sjrwmd.com/technicalreports/spubs1.html>
- Atmospheric deposition was one of the sources used in the NSILT
 - For Silver Springs, a hybrid approach was used that combines dry deposition data from monitoring networks and modeled data from the Community Multi-

scale Air Quality Model combined with National Trends Network wet deposition data

- The data period for this was 2011-2013
- This resulted in a 16 kilometer model grid
- For Rainbow Springs, which was completed earlier, both wet and dry deposition came from monitoring network data
 - Wet data from Bradford Forest and Chassahowitzka National Wildlife Refuge stations of the National Atmospheric Deposition Program
 - Dry data from Indian River Lagoon station of the Clean Air Status and Trends Network.

Jerry Guerra: So you extrapolated the numbers from the two monitoring locations?

Response: Yes, the data came from these two locations.

Jerry Guerra: What was the difference between how the two basins came out?

Response: For both basins, actual observable data was used, but for Silver we did modeling to come up with the grid system.

Question: Were there differences in the numbers?

Response: There was not a huge difference. We can look at the NSILT to get the exact numbers.

Bryan Schmalz: I remember that there wasn't a significant difference between the two.

Robert Himschoot: There is quite a difference between this area and some of the other BMAPs. The data is much better here.

- At some point in the future, it is possible that the Rainbow data could be updated to use the same method as Silver

Tracy Straub: Are we going to repeatedly analyze all of the NSILT loading data, or is this committee going to stay focused on topic?

Response: This will be the last time that we go over this data.

- The NSILT is our planning tool that we developed to estimate loading for the BMAP
 - It is an evolving tool
 - The tool looks at multiple sources
 - Uses literature data that is well documented, and data from Florida as much as possible
 - We will likely look at the NSILT again and reevaluate it for the next phase
- OSTDS NSILT approach
 - We first used data layers from Marion County for their counts
 - For other counties we used the FDOH estimates from 2009
 - We then used the 2010 census data to determine the persons per household
 - We then looked at the literature estimates for amount of Nitrogen per person per year, 4.5 kg-N/person/year
 - We then used an attenuation rate of 40%
 - We then applied an attenuation by recharge rate
 - Recharge rate incorporates soil and unsaturated zone properties

- A lower recharge rate gives a greater potential for biological remediation of nitrate
 - High recharge= 10% attenuation
 - Medium recharge= 50% attenuation
 - Low recharge= 90% attenuation
- Displayed is a map showing the recharge areas for both BMAP areas
 - There are not really any areas of low recharge in Rainbow
 - Silver is different and has areas of low recharge, and even some discharge areas

Tracy Straub: How did you determine the recharge rates?

Response: That was put together by the water management districts.

Tracy Straub: So it is different that the two water management districts used different approaches? I am surprised that there is such a difference between the two.

Robert Himschoot: Were there different types of soil from one side to the other?

Response: Not really. It looks like SJRWMD was just using a finer level of data.

Robert Himschoot: Would the density of pervious surfaces make a difference in the data?

Response: From an engineering side I would say yes, but I don't know if they used that in their methodology.

- There is a difference in the soil structures between the two areas that will make them look different. What is important is that the medium and high areas do join together properly where the boundaries meet.

Tracy Straub: We would expect the areas around the Withlacoochee and Rainbow Rivers to have the clay soil types and lower recharge like what shows up in the east around the Ocklawaha River.

Question: Why is it that in Silver, the high recharge is anything over 12 inches a year, and in Rainbow it is over 10?

Response: SJRWMD had many more breaks in their data. These are good points for us to consider when we are doing future revisions.

Russ Melling: We need to be talking to the water management districts to get them to use common terms and methodology. Things get very complex when you are using different data.

Response: The water management districts do talk to each other at least annually. That is a good point that on the science side they should be using the same break points in data.

- The TMDLs have a target concentration of 0.35 mg/L
 - Silver requires a 79% reduction in concentration
 - Rainbow requires an 82% reduction in concentration

Robert Himschoot: Do we know of any direct stormwater discharges into the Silver River?

Response: Half-mile Creek is unique between the two systems. There was direct discharge though that tributary, as the stormwater system that was there before was only to address flooding. City and County projects have since addressed this issue.

- This is the NSILT results for Silver Springs
 - OSTDS was 38% of the loading for the entire BMAP area
 - Inside the Priority Focus Area (PFA), OSTDS is 44%
 - These tables do list atmospheric deposition as a source, even though we do not have any good remediation techniques for that source
 - For now we are putting this source on the shelf until we come up with better tools
 - The primary concern for this group is the OSTDS portion of the pie chart

Russ Melling: Is there a number for what nitrogen occurs naturally in the environment that we can't do anything about?

Response: We don't really have that number right now. We are aware that some of it is irreducible.

Question: Will the loading from atmospheric deposition improve over the years as we go from coal to natural gas?

Response: It may, but some of it is coming from sources quite far away. We do have some statewide data and are dealing with what we can.

- For Silver, we have to get to 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
 - When you subtract the PFA from the BMAP area, you come up with a 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.

Question: What is the priority focus area?

Response: The PFA approximates the 10 year time of travel.

Robert Himschoot: How many septs are in the PFA? I am trying to grasp these numbers to know how we can approach this. We need to calculate these big numbers out to the individual, and look at what homeowners can personally do.

Response: We can get you the numbers for the PFA.

Jerry Guerra: If 44% of the loading was due to OSTDS, are we saying that we want to reduce 79% just by changing OSTDS systems?

Response: Each of the loading categories will get the same 79% reduction applied to them. Everybody has their own slice of the pie.

- There can be some trading done between the sources if more can be done in other areas

Russ Melling: It is not going to be easy. 85-95% of nitrogen is generated from humans. An average family generates 35-40 lbs-N a year. Reducing that back to 6 or 7 is significant. We have some new systems that we are looking at that will hopefully help, but this is still a high number.

- Displayed is the NSILT breakdown for Rainbow
 - The area is much more rural so agriculture plays a larger part

- The required reduction for rainbow is 82%
 - This equates to a reduction of 206,495 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
 - The number of concentrated septic systems is much smaller than with Silver

Russ Melling: Central sewer may not be an option in these areas.

Comment: The committee should understand the groundwater connection between these two BMAP areas and how it shifts

Response: We combined the two BMAPs for this project so that we don't have to address that variability. There is not a well-defined boundary and it shifts year to year. Policy decisions are going to be the same across the entire county.

- The PFA is more of a legal or policy boundary that we are required to have
 - The 79% is for the entire BMAP area.
 - The PFA is useful due to the lower time of travel
 - This means changes may show up sooner at the springs

Comment: On the dye test slide where you showed the time of travel, you left out the travel year zones. In the first test displayed, the water traveled from the 1,000 year time of travel zone to the 10 year zone in only 181 days.

Russ Melling: A lot of these studies were based on models from 20-30 years ago. Hopefully they have been updated since then.

Response: The model used to determine the PFA was a more recent tool. It has been updated since then.

Comment: It seems like the priority is approving newer systems that deal with nitrates. We don't have anything available right now. The building numbers are starting to go up and more septic systems are still going in.

Russ Melling: There are still a lot of questions about how some of these systems will work long term. It looks like we may have a good alternative coming up soon.

Comment: How cost-effective are these systems? You are going to get a lot of pushback from the building industry if they cost too much.

Russ Melling: The Technical Review and Advisory Panel (TRAP) is really considering cost.

Robert Himschoot: The National Sanitation Foundation has an approved list of systems. Many more OSTDS designs have been approved for use nationwide that haven't been approved for use in Florida, yet. There are systems out there that are reasonably priced. The ones we are looking at now are passive nitrogen reducing systems that use only one pump, so it is more complicated. All of these systems are going to need at least some type of periodic maintenance. Since the technology is available, these systems should be considered. Nitrogen is an issue on a national standpoint. There is also the issue of ammonia-based cleaning products.

Comment: The \$11,000-\$12,000 estimate of some of the newer systems is based off of the current prices. As these systems are standardized, the prices should drop considerably.

Tracy Straub: The passive systems are what we really need. We know that people have a tendency to not do the recommended maintenance. We will not be able to hook everybody up to central sewer. We are now starting to come out of the building slump, and we are missing opportunities to use these newer systems. I am hoping that it is not going to be another 2 years before these systems can be used.

Russ Melling: I can assure you that this is a priority of the TRAP, but we have to have some safeguards.

Comment: There is still some discussion over what a passive system really is.

- Displayed is the distribution of OSTDS in the Silver Springs BMAP area by recharge area.
 - You can see that there is a high density along the I-75 corridor

Comment: Some of those in the Lake County portion are within the upper-Ocklawaha BMAP area.

Response: Those adjoining BMAPs are beneficial to the Silver Springs and Rainbow Springs BMAPs.

Comment: I would also point out that the southern portion of this BMAP contains The Villages, which has explosive growth.

Response: We understand that, but it is important to note that they are on central sewer with expansive reuse. Most of their plants are able to treat to very low nitrate concentrations, even if they aren't technically AWT.

Question: So much of their reuse is used for irrigation, which is going right back down into the aquifer. How are we looking at that and getting those numbers?

Response: We are able to get that information from their permits. We have done those calculations for the BMAP.

Question: Is that area in a high recharge area?

Response: We would have to pull that up to really see. If reuse is being used properly, it is offsetting fertilizer usage.

Bryan Schmalz: That is what we are doing in On Top of the World. Our fertilizer use has declined substantially.

- For Silver, the number of OSTDS in the high recharge area is the greatest at 33,319
 - Medium recharge area has 26,265
 - Low recharge area has 6,705
- The majority of the OSTDS in the Rainbow Springs BMAP area is in Marion County, though there are some in Levy County
- Displayed are the medium and high density areas that are on OSTDS
 - This includes some commercial establishments and schools
 - There are some key areas that have medium and high recharge rates
 - This helps us to identify some areas that may be considered the low-hanging fruit

- Belleview and Ocala is already working in some of these areas
- We need to look at the utility data and ensure that it is up to date
 - FDOH shows some areas on OSTDS that we know are on central sewer
- The estimated urban OSTDS counts show that there are high amounts of medium density residential that are in the high and medium recharge areas. Definitions of residential development are based on Florida Land Use Cover and Forms Classification
- For Rainbow Springs, we can see that there is a very different distribution of OSTDS
 - What stands out is that there are only around 4,500 that are in medium density areas, and over 13,000 in low density areas

Tracy Straub: Is the definition for low, medium and high density areas here the typical definition that is used?

Kimberleigh Dinkins, Marion County Growth Services: This is the typical definition, but our Comprehensive Plan utilizes a different definition.

- Public education is one of the components that must be in the OSTDS Remediation Plan
- Overall goals of the public education plan:
 - Communicate consistent coordinated messaging to the public
 - Get community and policy-maker buy in
 - Increase public education/awareness about:
 - Wastewater management issues including OSTDS
 - Springs protection
 - Local groundwater systems and nutrient connections
- We have started to put together an issues list
 - Address inconvenience of sewerage an area.
 - Monthly sewer bill.
 - People don't see themselves as part of the problem.
 - Property rights.
 - Adequate facts to make appropriate policy.
 - Policy or permitting hurdles or barriers.
 - Buy in from decision makers and the public that OSTDS are a source of water quality impairment.
 - Willingness to address the problem.

Russ Melling: I did a lot of work with the Wekiwa BMAP and we have many public meetings. By the rule, they could only require somebody to update their OSTDS if there was a failure or a major expansion. We need to discuss these issues. If we don't have something in place we are just going to be spinning our wheels. If we are ready to go with new systems and people don't have to upgrade, they won't. Somebody needs to look into this issue.

Response: Yes, this issue we need to look into that would require statute changes. We can go back and look into the Wekiwa BMAP notes.

Bruce Phillips: Public officials are not going to go to the point of forcing homeowners to connect to central sewer when available. The State needs to pass rules on this. All we are able to do at this point is wait for somebody's system to fail. People are going to resist connection because they don't want a sewer bill.

Darryl Muse: We are having that same problem. We have only had about half of the people commit to connecting to our system, even though they are still paying an availability charge.

Response: We have the ability to make some movement with this as we craft the Remediation Plan.

Troy Nanke: We need more education for the homeowners. I would resist myself if it were me.

Question: Has there been any studies on how home values are effected by whether they are on septic or sewer?

Robert Himschoot: The Nation Association of Realtors did a study and found that it didn't really make a difference. As long as there is a functioning system in place, people didn't really care. Florida realtors got it passed into law that people don't have to get an OSTDS inspected when buying/selling a home. I would recommend that this be changed. We need to recognize that sewerage is not the only answer. Properly designed and maintained onsite systems can do very well, even the EPA recognizes this. Wekiwa has an updated groundwater study that I would like to know the results for.

Response: We can get you the information for that study or a presentation on it.

Robert Himschoot: No matter what type of system it is, they need to be looked periodically. Whether it is every 6 months for one of the newer systems, or every 5 years for the standard systems. We need to look into putting a maintenance program into place. Whether the County of the State provides the money for some of these areas, this is something that needs to be looked at. The adoption of nitrogen reducing systems needs to be looked at, and more than just the passive systems. Public education on this is very important. There is so much energy spent in the media right now talking about water quality. People need to know that there is a solution to the problem and know what they are putting into their system.

- Doug McKenzie-Mohr and William Smith put together some great social marketing steps for fostering sustainable behaviors:
 - Identifying Barriers and Benefits.
 - Designing a strategy that utilizes behavior change tools.
 - Piloting the strategy with a small segment of a community.
 - Evaluating the impact of the program once it has been implemented.

Comment: One of the barriers I would add is that I have a home in Lake County, and I called some septic pumpers to ask where they would take the waste, and they told me that it would go to Marion County. We need to add the barrier that our wastewater treatment plants are not prepared to handle the waste.

Response: This is not just a capacity issue, this has more to do with the content.

Bruce Phillips: They are looking at what to do to treat it so that they can send it to a septage receiving facility. Once land application stops, they will have to do this.

Angel Roussel, Marion County Utilities Director: We have the treatment capacity at our plants, but we have to look at the pretreatment that is required to accept it.

Russ Melling: Will there be a capacity issue if everybody in the County is required to pump their system on a routine basis?

Angel Roussel: We have done the calculations and there is plenty of capacity in the County.

Kimberleigh Dinkins: I just wanted to add that the market is shifting and septage haulers are looking into the alternatives and solutions are starting to come around.

- Barriers
 - Internal barriers can be individual or personal obstacles
 - External barriers are those outside of the control of the individual
 - Could require changes to legislative or regulatory framework
- Since there are multiple audiences, there will be different barriers and different approaches needed
 - Outreach is not as simple as it seems on the surface, lawmakers and property owners are going to look at things very differently

Bryan Schmalz: We need to look at our goals for the next meeting and what strategy we want to tackle first.

Robert Himschoot: We need to look at who is going to be responsible for management of this plan and who is going to identify the condition of these systems.

Response: DEP is responsible for management, but different entities will have their responsibilities. What is included in the BMAP will be required by Secretarial Order. As far as the condition of the systems, that is something that we can look at as one of the management steps of the Remediation Plan. It is probably not something we can do now or in the next 18 months, but it would be good to have at some point.

Bryan Schmalz: We need to look at what our options are. Where is the infrastructure located at and what are the odds of people connecting? We need to look at the locations of OSTDS and discuss the issues and barriers in each of the categories and figure out where we can get the most bang for our buck.

Response: Maybe at the next meeting it would be good to look at the various solutions and the plans of the utilities.

Bryan Schmalz: It is important to look at the existing infrastructure and capacity or wastewater treatment plants, and whether the municipality is open to absorbing the cost.

- We have found that there are about 58,000 lots in the BMAP areas that could potentially still be built on with septic

Tracy Straub: I would like to know what my options are today from a septic standpoint and what FDOH is pursuing that might show up in the near future that could be the silver bullet.

- It may be good for our next meeting to be a longer workshop
- The next meeting will likely be at Marion County Growth Services
 - We received feedback that it wasn't really important to go back and forth between the BMAP areas
- The next meeting will tentatively be November 3, and the following meeting December 15th.
- The biggest action items is to map out the main thrust of the Remediation Plan and see what is reasonable to discuss at the next meeting.

Contacts:

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- Kevin Coyne, Administrator Watershed Planning and Coordination Section, kevin.coyne@dep.state.fl.us
- Elke Ursin, FDOH, Environmental Manager Onsite Sewage Programs, Elke.Ursin@flhealth.gov
- Mary Paulic, Silver Springs Basin Coordinator, mary.Paulic@dep.state.fl.us
- Terry Hansen, Rainbow Springs Basin Coordinator, terry.Hansen@dep.state.fl.us
- Kenny Hayman, Senior Attorney, kenneth.Hayman@dep.state.fl.us
- Shane Williams, Facilitator, evan.williams@marioncountyfl.org

Meeting Adjourned