



February 08, 2022

Mr. Marcelo Blanco  
Environmental Administrator  
Florida Department of Environmental Protection  
Onsite Sewage Programs  
2600 Blair Stone Road, MS 3596  
Tallahassee, FL 32399

Subject: Onsite Sewage Treatment & Disposal Systems (OSTDS) Rule Development

Dear Mr. Blanco:

Miami Waterkeeper is pleased to provide comments in response to the public workshop held on January 25, 2022 concerning proposed amendments to Chapter 62-6, F.A.C. We understand that Senate Bill 712, the Clean Waterways Act, compelled FDEP to create an OSTDS Technical Advisory Committee (TAC) that was charged with developing and providing recommendations to the governor and legislature by January 1, 2022. One of the requirements was to provide recommendations concerning the physical location of OSTDS to inform updates to 62-6, F.A.C. The TAC, citing lack of empirical study, recommended maintaining current setbacks in rule for now. Our comments are as follows:

**Miami-Dade County has unique conditions**

There are an estimated 109,000 to 120,000 septic systems in place in Miami-Dade County<sup>1</sup>. Over half of those are at risk from sea level rise and rising groundwater tables and are already not functioning properly, according to a 2019 Miami Dade County Report. That number is projected to increase. Yet, approvals for new septic tanks continue to be granted.

Miami-Dade is surrounded by protected waterbodies, including two aquatic preserves, an Outstanding Florida Water, and two national parks. Our community is built on a highly porous, highly transmissive karstic limestone that also contains our drinking water

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<sup>1</sup> Walsh V, 2019, *Septic Systems Vulnerability to Sea Level Rise Water Quality Analysis –Ongoing Efforts*. Presentation to Biscayne Bay Task Force.

aquifer. South Florida's dense, urban areas sit at very low relief at an average of 1.83 meters above sea level.

In 1970, the federal government declared that Miami-Dade County should remove all septic tanks by 1990 and should immediately cease allowing new septic systems to be constructed<sup>2</sup>. Even in the best conditions, septic systems are not well-suited to Miami's geology or topography. And sea level rise is making the situation even worse.<sup>3</sup>

### **Water Quality Concerns**

At present, Biscayne Bay, and its surrounding canals and tributaries are experiencing extreme nutrient impairment and high levels of fecal bacteria. Failing OSTDS are hypothesized to be a significant contributor<sup>4</sup>. Over half of the septic tanks in the County are surrounding northern Biscayne Bay<sup>4</sup> -- the location of a severe fish kill in 2020 that killed at least 27,000 creatures.

### **Public Health is at Risk**

62-6.005 F.A.C. states that "sewage waste and effluent from onsite sewage treatment and disposal systems shall not be discharged onto the ground surface or directly or indirectly discharged into ditches, drainage structures, ground waters, surface waters, or aquifers." However, we know that most of Miami-Dade County's septic tanks are not in compliance -- over half do not have two feet of dry ground between the septic tank and the water table at certain times of year. The 2019 Miami-Dade County report further notes on page 15, "The U.S. Environmental Protection Agency (USEPA) has noted in previous studies that 'Septic systems are a significant source of groundwater contamination leading to waterborne disease outbreaks.'

### **Septic Tanks Increase Storm Risk**

This problem is worsened during storms as well, as noted in the Army Corps' Back Bay Study's August 2020 draft Environmental Impact Statement, stating on pages 38-39, "During storms many more (58,349) parcels are impacted. This results in widespread contamination of surface and ground water- both of which flow into Biscayne Bay. The underlying limestone karst rock, which is very porous, also negatively affects septic systems by allowing for increased drainage into the underlying ground water beyond typical underlying urban sediments, which in most areas of the US are considerably less porous. This increases the chances for ground water contamination beyond the typical septic field<sup>5</sup>.

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<sup>2</sup> Department of Interior 1970. **Pollution of the Waters of Dade County Florida.**

<sup>3</sup> Miami-Dade County RER, WASD, DOH 2018. **Septic Systems Vulnerable to Sea Level Rise, Final Report in Support of Resolution No. R-911-16.**

<sup>4</sup> Chin DA 2020. **Source Identification of Nutrient Impairment in North Biscayne Bay, Florida, USA**

<sup>5</sup> US Army Corps of Engineers 2020. **Miami-Dade Back Bay Coastal Storm Risk Management Draft Integrated Feasibility /report and Programmatic Environmental Impact Statement.**

Miami-Dade County's 2018 report (page 17) also states, "During a single King Tide event in November 2016, measurements of fecal enterococci and genetic measurements of human-host-specific fecal bacteria indicated high levels of bacterial contamination in the floodwaters". We hear from many residents who report that their yards flood during storms and they can see the septic vacuum working backwards, likely filling their yards with septic effluent, which can pose a health hazard and/or contaminate surface waters. Florida Department of Health themselves sent out the following email with the subject line, "Flood Waters Pose Health Risks" in November 2020, stating,

**If your home is served by a septic tank and your plumbing is functioning slowly or sluggishly, you should:**

- Conserve water as much as possible. If you use less water, you will increase the chance of not having any septic problems. This would include minimizing the use of your washing machine by going to a laundromat. Also, consider using a portable restroom.
- Do not have the septic tank pumped. Exceptionally high water tables might crush a septic tank that was pumped dry, or it could pop out of the ground. If the main problem is high ground water, pumping the tank will not solve that problem.
- If you cannot use your plumbing without creating a sanitary nuisance, such as sewage on top of the ground, consider renting a portable restroom for a temporary period, or moving to a new location until conditions improve.
- Do not have the septic tank and drain field repaired until the ground water has receded below the bottom of the drain field. Often, systems will function properly again when dry conditions return. Any repair must be permitted and inspected by the Department.

For further information, go to <http://miamidade.floridahealth.gov/> or contact DOH-Miami-Dade at 305-324-2400.

It is urgent and imperative to address the failing wastewater infrastructure situation. It is unacceptable to ignore the clear risks from allowing failing septic tanks to remain.

### **The Need for Regionally-Focused Regulations**

With these acknowledgments, Miami Waterkeeper asks that FDEP:

- 1) Fund and carry out with a sense of urgency studies around the state to understand the nature of nutrient, pathogen, and trace organic chemical transport into our waterways and aquifer from OSTDS's. Miami Waterkeeper also asks that FDEP consider studies regarding our local geology and aquifer transmissivity as it assigns setback requirements.
- 2) Establish science-based setbacks accordingly, region by region.
- 3) Fully incorporate projections of sea level rise, coastal and inland flooding, and rising groundwater into calculating setbacks.

We watched the OSTDS TAC fly by on its expedited timeframe, and we noted that there was not a lot of discussion on regional suitability for septic in South Florida. We are providing studies performed in Miami-Dade County for FDEP to review:

- **Attachment 1:** This is a 2004 expert witness report associated with the Lake Belt Mining challenge. The study used red dye tracer tests to evaluate limestone mining setbacks from a wellfield, as the mining could be a source of pathogens and contamination. The study found rapid and unexpected red dye showing up in wells in a matter of hours rather than days, given the hydraulic conductivity of our aquifer.
- **Attachment 2:** A 2014 USGS study shows that geology in Miami-Dade is continuous and highly permeable across the uppermost part of the Biscayne aquifer. Mean hydraulic conductivity was found to be a mean of 8,200 feet per day at the paper's study site, the C-2 canal basin, which runs through urbanized/residential Miami.
- **Attachment 3:** Miami-Dade County produced a 2018 study showing the areas where groundwater levels are currently so close to the surface that existing septic systems are likely compromised and may no longer be providing adequate treatment for at least part of the year. This report also states that "within the next 25 years... the number of residential systems that may be periodically compromised during storms or wet years could be expected to significantly increase from approximately 56% today to 64+% by 2040".
- **Attachment 4:** This is a 2020 study that found that the main sources of nutrients to the canals that discharge to Biscayne Bay are groundwater inflow and direct surface water runoff. Septic tanks have been cited as one of the prime contributors to groundwater nutrient levels and nutrient enrichment to the estuary.
- **Attachment 5:** Miami Waterkeeper Memorandum dated November 2020. This document encapsulates the problems with OSTDS in our county and cites scientific literature from our region and around the state.
- **Attachment 6:** Miami-Dade County produced a December 2020 study as a follow-up to Attachment 3. The document estimates the numbers of vulnerable septic tanks in our region in years 2020 and 2040. **Permits should not be granted for septic tanks in these areas.**

Additionally, we ask that you review **Attachment 7** as it serves as an excellent case study. Brevard County commissioned this study in 2018 to assess OSTDS pollution in its area. The study concluded that buffer areas for septic systems should vary subject to the specific geology and hydrology of the area. If similar studies were done throughout the State, appropriate setback requirements could be implemented.

Miami Waterkeeper is working on a scientific study with an academic partner using a particle tracking model of septic return flows. Results will allow us to identify “hotspots” to guide water quality sampling efforts and to provide recommendations for areas that could benefit most from setback requirements. We’d be pleased to forward this to FDEP when it has been peer-reviewed and published.

Thank you for the opportunity to comment. If you would like to discuss with us further, please do not hesitate to contact me at [Rachel@Miamiwaterkeeper.org](mailto:Rachel@Miamiwaterkeeper.org) and my policy team: [Stauber.Aaron@gmail.com](mailto:Stauber.Aaron@gmail.com), [Samantha@miamiwaterkeeper.org](mailto:Samantha@miamiwaterkeeper.org), and [Audrey@miamiwaterkeeper.org](mailto:Audrey@miamiwaterkeeper.org).

Sincerely,

A handwritten signature in black ink, appearing to read 'RS', with a long horizontal flourish extending to the right.

Dr. Rachel Silverstein  
Executive Director and Waterkeeper  
Miami Waterkeeper  
PO Box 141596  
Coral Gables, FL 33114-1596

Attachments:

1. Evaluation of Tracer Tests Conducted at the Northwest Wellfield (S.S. Papadopoulos & Associates)
2. Geologic and Hydrogeologic Frameworks of the Biscayne (USGS 2014)
3. Vulnerability of Septic Systems to Sea Level Rise (Miami-Dade County 2018)
4. Source Identification of Nutrient Impairment in Biscayne Bay (Chin 2020)
5. Miami Waterkeeper Scientific Support for Septic to Sewer Conversion (2020)
6. Septic Systems Vulnerable to Sea Level Rise Plan of Action (Miami-Dade County 2020)
7. OSTDS Pollution Potential Analysis: Final Report for Brevard County (2018)