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Civic Association

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Your Community Advocate

May 14, 2025

Ms. Alexis A. Lambert, Secretary
Mr. John Truitt, Deputy Secretary, Regulatory Programs
Mr. Adam Blalock, Deputy Secretary, Ecosystem Restoration

Florida Department of Environmental Protection
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

RE: Complaint - City of Marco Island Domestic Wastewater Facility FLA014167

Dear Lady and Gentlemen:

On behalf of the citizens of Marco Island, Florida, the Marco Island Civic Association (MICA) hereby respectfully requests that the FDEP re-examine the Reclaimed Water Production Facility (RWPF) Permit for Marco Island pursuant to the terms of paragraph section IX, paragraph 5 of that permit which states:

"This permit does not relieve the permittee from liability and penalties for **harm or injury** to human health or welfare, **animal or plant life**, or property caused by the construction or operation of this permitted source; nor does it allow the permittee to **cause pollution** in **contravention of Florida Statutes** and Department rules, unless specifically authorized by an order from the Department. The permittee shall take all reasonable steps to minimize or prevent any discharge, reuse of reclaimed water, or residuals use or disposal in violation of this permit which has a reasonable likelihood of **adversely affecting** human health or the **environment**. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. *[62-620.610(5)]*"

I personally served on the Marco Island Waterways Advisory Committee (WAC), 2021 to 2024. We discovered that the Reclaimed Water Production Facility (RWPF) on Marco Island harms the environment in violation of their permit by "taking" oxygen out of the canals.

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Marco Island WBID 3278O is currently on the FDEP Biennial Assessment 2022-2024 (All Groups) for "Decreasing Trend in Dissolved Oxygen Levels" and is listed as **"impaired."** See this link: https://floridadep.gov/dear/watershed-assessment-section/content/assessment-lists.

FDEP comments are: "This waterbody has sufficient data to meet the planning list requirements for this parameter based on a significant decreasing trend in dissolved oxygen levels or increasing trend in the range of daily dissolved oxygen fluctuations of the 90% confidence level using a one-sided Seasonal Kendall test for trends."

Using a statistical software package called "SAS JMP" a strong correlation was found between oxygen in the canals and the nutrients (phosphorus and nitrogen) in the reuse water from the Marco RWPF (FLA014167). This finding was formally reported to the Marco Island Waterways Advisory Committee (WAC) on September 16, 2021. The 9.16.25 WAC agenda can be seen in this link: https://marcoisland.legistar.com/Calendar.aspx. See 9.16.21 agenda item 9.b: Water Quality Presentations: "*Marco Hypoxia Investigation 8.25.21.pdf*"

This 2021 report communicated that a Dissolved Oxygen (DO) deficiency was observed on Marco Island only and not in the surrounding estuary including Rookery Bay and the 10,000 Island. The drivers of the low oxygen levels were determined to be phosphorus and nitrogen in the reuse water from the Marco RWPF.

Science supports this statistical correlation. See the United States Environmental Protection Agency (EPA) website: https://www.epa.gov/nutrientpollution where it states "Nutrient pollution is one of the most widespread and challenging environmental problems our nation faces. When too many nutrients—mainly nitrogen and phosphorus—enter our water bodies they cause excessive algal growth which can harm aquatic life and, in many instances, produce toxins that can also harm people and animals."

Oxygen in the Marco canals has dropped 70% over the last four years. Oxygen is the most important water quality indicator - essential to all aquatic life.

During October 2024, phosphorus levels in the Marco canals exceeded the FDEP limit. The Marco canals may have completed the first year of phosphorus impairment. One more year of high phosphorus and Marco might be declared as officially impaired for that parameter as well as for oxygen trend.

What causes the low oxygen in Marco canals? Two data sources were compared. The city measures phosphorus in sewage reuse water distributed as irrigation water. The city also measures oxygen in fourteen canal locations. Comparison of these two data sets showed a strong statistical correlation between high phosphorus in the sewage reuse water and low oxygen in the canals.

What does science say about the connection? Nutrients in the sewage reuse water, nitrogen and phosphorus (think fertilizer), feed algae in the canals. Low levels of algae are always present. When the equivalent of 70,000 bags of fertilizer from the reuse water are added to the canals each year, the algae population explodes. This is one bag of fertilizer for each canal every day. Decomposition of dead algae consumes canal oxygen.

Oxygen is dropping and phosphorus is increasing, indicating the existence of a major environmental problem in the Marco canals called "eutrophication." No oxygen for the fish. No food for birds and other wildlife. Algae in the water column blocks sunlight and the seagrass dies – this means no food for manatee. The algae scum on the surface of the canals stinks and is toxic. No swimming in the canals.

There is only one source of phosphorus on Marco Island – the sewage reuse water. The Marco eutrophication problem is an unintended consequence of the sewage reuse program implemented to save the Florida aquifer.

The solution? Cleaning the nitrogen and phosphorus out of the sewage reuse water will eliminate this pollution at the Source. In late 2022, the city of Marco Island issued a Request for Information (RFI) for technologies to clean nutrients out of reuse water. One of the responses was from a firm used by FDEP (NuQuatics) to prevent a major environmental catastrophe from a gypsum stack failure at Piney Point (the equipment was installed in 17 days).

The cost to "polish" 97% of the nutrients out of the Marco sewage reuse water was estimated to be $5,000,000. A lease option might be available. A grant from the FDEP Innovative Technologies Portal might cover 100% of the cost. A "shovel ready" project.

MICA requests that the FDEP:

1. Investigate the Marco Island WWTP RWPF FLA014167 and the harm done to WBID 3278O in the form of depleted oxygen.
2. Require that the Marco Island WWTP RWPF FLA014167 be upgraded to **Advanced Wastewater Treatment (AWT)** to remove excess nutrients, as defined in the Grizzle-Figg statute.
3. Document the Marco Island Case Study with a formal report that shows that reuse water can harm the environment when not properly treated prior to release. This will be a unique study that will benefit the entire state of Florida.

There is substantial public support for this solution. Several community boards have issued letters to the Marco city council supporting a project to upgrade the WWTP to Advanced Wastewater Treatment (AWT): Marco Island Civic Association (MICA), Marco Sportfishing Club, Marco Island Sail & Power Squadron (MISPS), Clean Marco Waters, LLC, and the Marco Island Historical Society (MIHS).

Respectfully submitted,

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The Marco Island Civic Association (MICA) is the oldest and largest civic group on Marco Island, serving over 20,000 residents and property owners on Marco Island. MICA is a non-profit corporation whose general purpose is to promote and advance the principles of civic improvement and betterment on Marco Island.

CC: Governor Ron DeSantis
Senator Rick Scott
Congressman Byron Donalds
Congressman Mario Diaz Balart
Senator Kathleen Passidomo
Representative Yvette Bennaroch