

December 18, 2014

To: Mayor Danny Kohlage; Mayor Pro Tem Heather Carruthers; Commissioners Sylvia Murphy, George Neugent, and David Rice

Copy to: County Manager Roman Gastesi; and County Attorney Bob Shillinger

Additional Copy to: Kirk Zuelch, FCAA Executive Director; Robert Feldman, FCAA General Counsel; Fred Springer, FCAA counsel; Diana Lee Davis, counsel for Sugarloaf Shores Property Owners' Association and Cudjoe Gardens Property Owners' Association

From: Caron Balkany, Esq.

By email

Re: Cudjoe Regional Wastewater Treatment Facility

Dear Mayor and Commissioners:

Undersigned counsel represents Mike Laudicina and Don DeMaria, as their personal *pro bono* attorney. Mike and Don are petitioners in the legal challenge to the shallow wells at Cudjoe Regional. I am writing at their request because we have been advised that Florida Keys Aqueduct Authority (FKAA) is requesting that the Board of County Commissioners fund some water quality studies with respect to the impact of the shallow injection wells on surface water quality. FKAA wants you to rely on those test results in deciding whether to fund the deep well which is the subject of the legal challenges currently pending.

My clients have had the proposed study design reviewed by an independent expert in the field of hydrogeology, Dr. Todd Kincaid, who specializes in tracer studies such as those proposed by the FKAA study, as well as in other aspects of karst geology

like that of the lower Florida Keys. Our expert witnesses - hydrogeologist and engineer Don Maynard and marine biologist Dr. Brian Lapointe -- have also reviewed the proposed studies.

As detailed below, the proposed FKAA studies are not scientifically defensible and cannot be used to support the conclusion that the shallow wells will not cause migration of the partially treated sewage effluent to the surface waters. Further, these experts agree that whether the transit time is a matter of days – by finding one of the many conduits in the area - or months, when the effluent simply rises by buoyant flow and percolates up through the our porous limestone - the partially treated effluent **will** reach the surface and **will** cause violations of surface water quality and damage to our fisheries and the local economy.

Additionally, according to Dr. Lapointe, “Unfortunately, FKAA did not follow the normal, accepted process of advertising for competitive bids for this study and instead chose to sole source this study with a handpicked group, which is not the way independent scientific studies are supposed to be conducted.”

Therefore, my clients will not accept these studies in settlement of their legal challenge to the shallow well permit. Further, FKAA agreed to conduct water quality monitoring back in 2009, as part of the permitting process, so I am concerned about why FKAA is asking the County Commission to fund the studies, and why the studies weren’t conducted years ago, as agreed.

We are unsure of whether you are being advised that these studies are being

considered as a settlement of the challenge to the shallow wells, and want to make our position clear that they are not.

According to Dr. Todd Kincaid, karst hydrogeologist and geologist, President of GeoHydros, LLC, and one of the leading hydrogeologists studying and testing karst geological formations such as those in the Lower Keys, contracted by the federal Department of Energy, the Department of Environmental Protection, and private corporations, “The (study designers) state up front that the trace will confirm or refute flow patterns from the injection wells to the surface. This type of statement is very concerning because negative results of a tracer test are meaningless.”

Tracer studies can be used to prove that a pathway does exist – if the monitoring stations happen to be placed in a location where the dye surfaces – but they can’t be used to prove that no pathways exist, because it’s not possible to place enough monitoring stations to rule out all pathways in our very porous karst geology in the very large areas of surface waters which would need to be tested.

Dr. Kincaid adds, “No results means that the experiment failed, not that that there isn’t a pathway.”

Additionally, according to Dr. Kincaid, there are many ways that a flawed study design such as this can produce a negative result, but it will be because they didn’t use enough dye, they used a dye which decomposed under sunlight or in the presence of organic compounds already in the water, they didn’t use enough flow, they didn’t use enough head, they didn’t put enough monitoring stations out.

Dr. Lapointe, Dr. Kincaid, and Don Maynard are all concerned that the study only proposes monitoring stations close by the wells, while lateral flow of the injectate from the shallow wells can cause the partially treated effluent to move out to the back country waters and the reefs, for which no monitoring is being proposed.

They are also concerned because the study design is not sufficiently precise and is not subject to verification. Specifically, the experts are concerned about:

1. Failure to specify the quantity of the injectate, the duration of the test injection, and that all four wells will be used simultaneously to their maximum permitted capacity, so as to reproduce the conditions under which the system will be operated. Each of these variables is critical to the validity of the study results and should have been specified in the study proposal. "If sufficient fresh water is not injected with sufficient amounts of dye for a long enough time, then the enhanced hydraulic gradient caused by the proposed future effluent injection will not be tested, and the proposed work will only measure ambient, existing conditions," says Maynard.

2. To have any scientific validity, the tests would have to be run with all four wells simultaneously operational at maximum permitted capacity for at least 3 months, to allow for hydraulic conductivity as well as simple buoyant flow to the surface.

3. "Organic compounds already present in the water from the landfill may interfere with the spectral response of the dyes."

4. The study's methodology for analyzing the tracer dye results is invalid because the proposed "comparison of average values with point values is not valid or statistically defensible."

5. “Seasonal effects on the temperature and precipitation recharge need to be evaluated, and a method for measuring them added to the project.”

6. Details regarding the timing of the surface water sampling and monitoring in relation to the season, tidal cycle and precipitation events should be added.

7. The impacts of the increased flow of already contaminated groundwater from the landfill if injection from shallow wells takes place has not been adequately accounted for in the studies.

In sum, we urge you not to approve the requested funding for these flawed studies and to approve the funding for the deep wells which taxpayers have already provided funding for and which will protect our surface waters and avoid the delay and expense of litigation.