

## Burgos, Alexander N

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**Subject:** FW: [External] City of Greensboro Objection Letter to Rules Review Commission re: 1,4-dioxane WQS - Additional Information on Advanced Treatment Costs

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**From:** Groome, Martie <[Martie.Groome@greensboro-nc.gov](mailto:Martie.Groome@greensboro-nc.gov)>

**Sent:** Wednesday, May 18, 2022 4:28 PM

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**Subject:** [External] City of Greensboro Objection Letter to Rules Review Commission re: 1,4-dioxane WQS - Additional Information on Advanced Treatment Costs

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Mr. Duke,

This is a follow up email to the objection that I made previously on behalf of the City of Greensboro T. Z. Osborne Water Reclamation Facility (TZO) regarding 15A NCAC 02B .0212, .0214, .0215, .0216, and .0218 (new 1,4-dioxane Water Quality Standards).

In my objection, I talked about costs of advanced wastewater treatment processes that would be required to treat 1,4-dioxane down to the levels associated with the new water quality standard.

I obtained capital and operating costs from three advanced wastewater treatment facilities in California.

- I visited in the Leo J. Vander Lans Advanced Water Treatment Facility in Long Beach, California back in 2018. This 8 MGD plant was built in 1999, at a capital cost of \$106 million. The current annual operating costs are \$5.2 million.
- The Albert Robles Center for Water Recycling and Environmental Learning, in Pico Rivera, California, is a 14 MGD capacity plant, built in 2019, at a capital cost of \$90 million. The current annual operating costs are \$9.6 million.
- The Orange County, California Water Replenishment Facility is a 100 MGD advanced treatment system built in “2004 dollars” at a capital cost of \$300 million. The facility treats secondary effluent wastewater provided by another agency, the Orange County Sanitation District. The current annual operating costs are ~\$50+ million.

Using an average of the capital costs of these 3 California facilities as a basis for TZO’s capital cost for advanced treatment, it would be ~\$300 million to upgrade the 56 MGD Greensboro facility.

The current annual operating cost of the TZO facility is \$19.5 million. Based on the Orange County facility’s operating cost, the annual cost to operate a 56 MGD advanced wastewater system at TZO would increase to \$40.8 million.

The additional capital and operating costs would be significant. These estimates include the additional treatment processes needed for 1,4-dioxane removal (microfiltration, reverse osmosis, and UV with advanced oxidation using peroxide). This level of advanced treatment would be necessary to reach concentrations less than 1 microgram per liter at TZO’s effluent discharge.

I hope these numbers help put in perspective why we requested a fiscal note be completed before the adoption of the 1,4-dioxane water quality standard.

Feel free to contact me if you have questions or need additional information.

Elijah Williams  
Water Reclamation Manager  
City of Greensboro Water Resources Department  
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